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# PICKERING NGS B POSTOPERATIONAL AQUATIC STUDY, 1987

Report No 88-261-K

J.K. Kwik
Biologist
Biological Research Section
Chemical Research Department

## ABSTRACT

Results of the second year of the Pickering NGS B postoperational study conducted in 1987 are presented. The objective of the study is to describe the fish community of the study area and assess potential effects of the operation of the station on it during the 1986-1988 postoperational phase. Alewife was the most abundant fish taken in beach seines, trap nets and gill nets. For a second consecutive year, lake trout dominated the gill net catch in terms of biomass. Some species of recreational value, including lake trout, brown trout, coho salmon and round whitefish have increased in abundance since the preoperational years. Stomach analysis indicated that rainbow smelt was the main prey species consumed by lake trout while alewife was the main prey species consumed by brown trout and coho salmon. Round whitefish was the most common species present in the study area during the November 26-December 8 round whitefish spawning investigations. The largest single catch of round whitefish was taken at the Pickering NGS B discharge 7 m location on November 26.

| job | file | date | report |
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| 34-596-492 | 837.321 PIC | November 23, 1988 | 88-261-K |

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## EXECUTIVE SUMMARY

# PICKERING NGS B
# POSTOPERATIONAL AQUATIC STUDY, 1987

J.K. Kwik
Biological Research Section
Chemical Research Department

Results of the second year of the Pickering NGS B postoperational study conducted in 1987 are presented. The objective of the study was to describe the fish community of the study area and assess the potential effects of the station on this community during the 1986-1988 postoperational phase. The results will ultimately be compared to data collected during the 1979-1981 Pickering NGS B preoperational study and 1982-1985 interim studies in an effects report. These studies were requested by the Environmental Studies and Assessment Department of the Design and Development Division - Generation of Ontario Hydro on behalf of the Pickering Engineering Department.

The 1987 studies reported here include a juvenile and adult fish survey consisting of monthly beach seining, trap netting and gill netting at the Pickering NGS A discharge, the Pickering NGS B discharge, Duffin Creek and Simcoe Point, and a round whitefish spawning study conducted in the fall between the Pickering NGS A discharge in the west and Thickson Point in the east.

Typically, alewife was the most abundant species in the beach seine, trap net and gill net catches. For a second consecutive year, lake trout dominated the gill net catch in terms of biomass. May to November gill net catches of brown trout and coho salmon were higher than in previous years. Lake trout and round whitefish catches were down from 1986 but were higher than they had been during the preoperational study. Increases in the abundances of lake trout, brown trout and coho salmon over the preoperational years are a result of steady stocking of salmonids since the late-sixties and early seventies.

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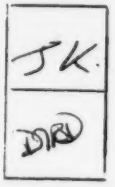
| 34-159-492 | 837.321 PIC | November 23, 1988 | 88-261-K |

Stomach analysis indicated that rainbow smelt was the main prey species consumed by lake trout and alewife was the main prey species consumed by brown trout and coho salmon.

Round whitefish was the most common species present during the round whitefish spawning investigations conducted in November-December. The single largest catch of round whitefish was taken in the Pickering NGS B 7 m net on November 26. Comparison of 1987 average catch at Whitby West and Thickson Point to those of previous years indicated that round whitefish were more abundant than they had been in 1979-1986.



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To: Mr. C.W. Dawson
Section Head
Environmental Sciences and Technology Section
Environmental Studies and Assessment Department
Design and Development Division - Generation

**PICKERING NGS B**
**POSTOPERATIONAL AQUATIC STUDY, 1987**

## 1.0 INTRODUCTION

Pickering NGS B is a nuclear station consisting of four CANDU powered 540 MW units (Units 5-8) located on the north shore of Lake Ontario at Pickering, Ontario. All four units were in service by February, 1986; Unit 5 first produced electricity in December of 1982, Unit 6 in November of 1983, Unit 7 in November of 1984 and Unit 8 in January of 1986.

The station is situated on the east side of Pickering NGS A which also consists of four CANDU powered 540 MW units (Units 1-4). The two stations have a common surface condenser cooling water intake. Pickering NGS B uses 33.4 $m^3$ of cooling water per unit per second and Pickering NGS A uses 30.8 $m^3$ per unit per second. Pickering NGS B discharges its cooling water to the east of the development while Pickering NGS A discharges to the west. The calculated temperature increase across the condenser with two pumps per unit and four units operating is estimated at 9.2 $C^o$ for Pickering NGS B and 9.7 $C^o$ for Pickering NGS A (RMEP-IR-07211-1).

During 1987 combined operational capacity for Pickering NGS A and B was either five or six units. Generally, six units were operating from January through early May, five from early May through late September, and back to six for the remainder of the year. Unit 1 was only operational for periods in September and October and from mid-November through December. Unit 2 was down all year. Units 3 to 8 all had forced and sudden outages of short durations. Planned outages of longer duration occurred from mid-July to late-September for unit 3, from mid-November through December for unit 4, from early-May to mid-July for unit 5, from late-September to late-October for unit 6 and from early-March to late-April for unit 8. Unit 7 did not have a planned outage.

A Pickering NGS B preoperational aquatic study was conducted between 1979 and 1981 (Ontario Hydro Research Division Report No 84-135-K). Interim studies were conducted during the 1982-1985 commissioning period (Ontario Hydro Research Division Report Nos 83-135-K, 84-341-K and 87-149-K). Postoperational studies were initiated in 1986 and will continue through 1988 (Ontario Hydro Research Division Report 87-194-K).

The second year of the Pickering NGS B postoperational study included monthly fishing by beach seines, trap nets and gill nets from May through November along four transects between the Pickering NGS A discharge and Simcoe Point. A round whitefish spawning study, which involved gill netting from the Pickering NGS A discharge to Thickson Point, was conducted in November and December. The results of these aspects of the 1987 program are presented in this report.

In addition to the above studies, a sediment radionuclide study, a discharge fish residency study, and a radiotelemetry study with the objective of determining lake trout residency in the thermal discharge were also conducted in 1987. The results of these studies will be presented in separate reports.

The Pickering NGS B postoperational aquatic studies were requested by the Environmental Studies and Assessment Department of the Design and Development Division - Generation on behalf of the the Pickering Engineering Department.

## 1.1 Objectives

The objectives of the studies included in the postoperational program were based on hypotheses identified at a workshop held with the purpose of designing the Pickering NGS B postoperational studies (Greig et al 1986).

The objective of the juvenile and adult fish survey was to provide data for the interpretation of gross changes in the fish community. In addition, the information will be used to assess potential effects of the operation of Pickering NGS B on the fish community. The results will ultimately be compared to data collected during the preoperational and interim studies in an effects report.

The hypothesis for the round whitefish spawning study is that the Pickering NGS thermal plume and water intake will decrease round whitefish populations through hatch advancement and entrainment of larvae. It was suggested that this hypothesis is likely valid but that more information on the spatial distribution and historical populations of round whitefish in the area is required to test it. The objective of the present study is to monitor the relative abundance of round whitefish from Pickering NGS to Thickson Point during their spawning period as an indicator of spawning activity.

## 1.2 Study Area

The study area covered a 15.5 km stretch of Lake Ontario shoreline from the Pickering NGS A discharge in the west to Thickson Point in the east (Figure 1). Transects fished during the juvenile and adult fish survey were the Pickering NGS A discharge, Pickering NGS B discharge, Duffin Creek and Simcoe Point. Transects fished during the round whitefish spawning study were the Pickering NGS A discharge, Pickering NGS B discharge, Simcoe Point, Richardson Point, Whitby West and Thickson Point.

The 3 m locations on the transects were marked with Geotechnical and Hydraulic Engineering spars. Offshore locations were identified using a compass and depth sounder, as well as shore markers.

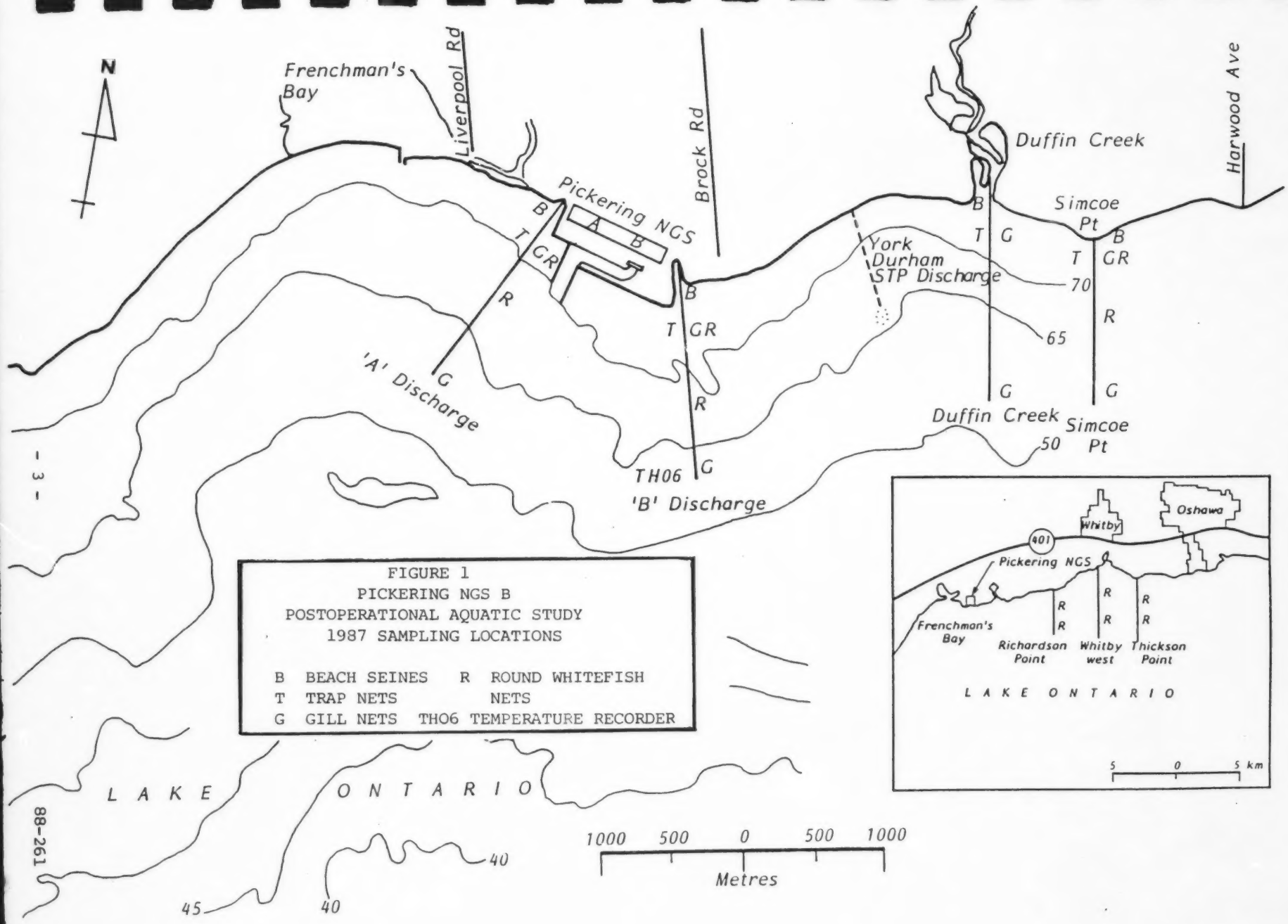


FIGURE 1
PICKERING NGS B
POSTOPERATIONAL AQUATIC STUDY
1987 SAMPLING LOCATIONS

B BEACH SEINES R ROUND WHITEFISH
T TRAP NETS NETS
G GILL NETS TH06 TEMPERATURE RECORDER



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## 2.0 METHODS

### 2.1 Juvenile and Adult Fish Survey

Juvenile and adult fish populations were sampled monthly along transects at the Pickering NGS A discharge, the Pickering NGS B discharge, Duffin Creek and Simcoe Point using beach seines, trap nets and gill nets.

Triplicate beach seine hauls using 15 m seines were taken after dusk monthly from May through October with the exception of June. In June, adverse weather conditions prevailed during the week scheduled for beach seining. Full work schedules for the ensuing weeks precluded further attempts.

Trap nets were set monthly from May through October. Trap netting was scheduled for November but was canceled due to adverse weather conditions. Paired, 1.2 m trap nets were set perpendicular to shore at the 3 m depth for two consecutive 24-hour sets. In September, only one 24-hr set could be fished at the Pickering NGS A discharge due to high wave action.

Gill nets were set for two consecutive 24-hour sets monthly from May through November. Exceptions to the two 24-hour sets as a result of adverse weather conditions occurred at the Pickering NGS A discharge in September when the net was only set for one 24-hour period and in October when the net was set for a 48-hour period. Gill nets consisted of eight, multi-filament nylon, 15 m panels with mesh size increasing in 1.3 cm increments from 3.8 to 12.7 cm. They were set perpendicular to shore along the bottom at the 3 and 12 m depths (depth of inshore end of nets.)

Fish were identified to species and counted. Stomach analysis was conducted on subsamples of salmonids that were killed in the gill nets. Fork lengths and weights of salmonids killed in the nets were recorded and scales were collected for submission to the Ontario Ministry of Natural Resources. Salmonids captured alive were tagged with Floy Spaghetti tags and released. Mark and recapture data will be presented in the final postoperational report.

The station operating conditions during the fishing periods are presented in Table 1. Either five or six units were operational during all fishing occasions.

### 2.2 Round Whitefish Spawning Study

During the 1987 round whitefish investigations, gill nets were set on three occasions: November 26-27, December 2-3 and December 8-9. Transects fished were the Pickering NGS A discharge, Pickering NGS B discharge, Simcoe Point, Richardson Point, Whitby West and Thickson Point. The nets were identical to those used in the adult and juvenile fish survey. The nets were set perpendicular to shore along the bottom at the 3 and 7 m depths (inshore end of nets) for a 24-hour period. Round whitefish fork lengths were recorded and scales collected for age and growth determinations. The age and growth data will be presented in the final postoperational report.

## 3.0 RESULTS AND DISCUSSION

### 3.1 Water Temperature

Daily mean water temperatures recorded offshore from the Pickering NGS B discharge at a depth of 12 m (Figure 2, Geotechnical and Hydraulic Engineering location TH06) indicated gradual warming of the water from April through mid-June. A more rapid warming, interrupted by

TABLE 1

STATION OPERATING CONDITIONS
DURING FISHING PERIODS

| | UNITS | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| GILL NETS | | | | | | | | |
| MAY 12-14 | 0 | 0 | X | X | 0 | X | X | X |
| JUNE 15-17 | 0 | 0 | X | X | 0 | X | X | X |
| JULY 13-14 | 0 | 0 | X | X | X | X | X | X |
| JULY 15 | 0 | 0 | 0 | X | X | X | X | X |
| AUG 10-12 | 0 | 0 | 0 | X | X | X | X | X |
| SEPT 14-15 | 0 | 0 | 0 | X | X | X | X | X |
| SEPT 16 | X | 0 | 0 | X | X | X | X | X |
| OCT 6-8 | X | 0 | X | X | X | 0 | X | X |
| NOV 9-11 | 0 | 0 | X | X | X | X | X | X |
| TRAP NETS | | | | | | | | |
| MAY 20-22 | 0 | 0 | X | X | 0 | X | X | X |
| JUNE 21-23 | 0 | 0 | X | X | 0 | X | X | X |
| JULY 22-24 | 0 | 0 | 0 | X | X | X | X | X |
| AUG 18-20 | 0 | 0 | 0 | X | X | X | X | X |
| SEPT 21-23 | X | 0 | X | X | X | 0 | X | X |
| OCT 13-15 | X | 0 | X | X | X | 0 | X | X |
| BEACH SEINES | | | | | | | | |
| MAY 27 | 0 | 0 | X | X | 0 | X | X | X |
| JULY 22 | 0 | 0 | 0 | X | X | X | X | X |
| AUG 19 | 0 | 0 | 0 | X | X | X | X | X |
| SEPT 21 | X | 0 | X | X | X | 0 | X | X |
| OCT 19 | X | 0 | X | X | X | 0 | X | X |
| ROUND WHITEFISH | | | | | | | | |
| NOV 26-27 | X | 0 | X | X | X | 0 | X | X |
| DEC 2-3 | X | 0 | X | X | X | 0 | X | X |
| DEC 8-9 | X | 0 | X | X | X | 0 | X | X |

0 - not operating
X - operating

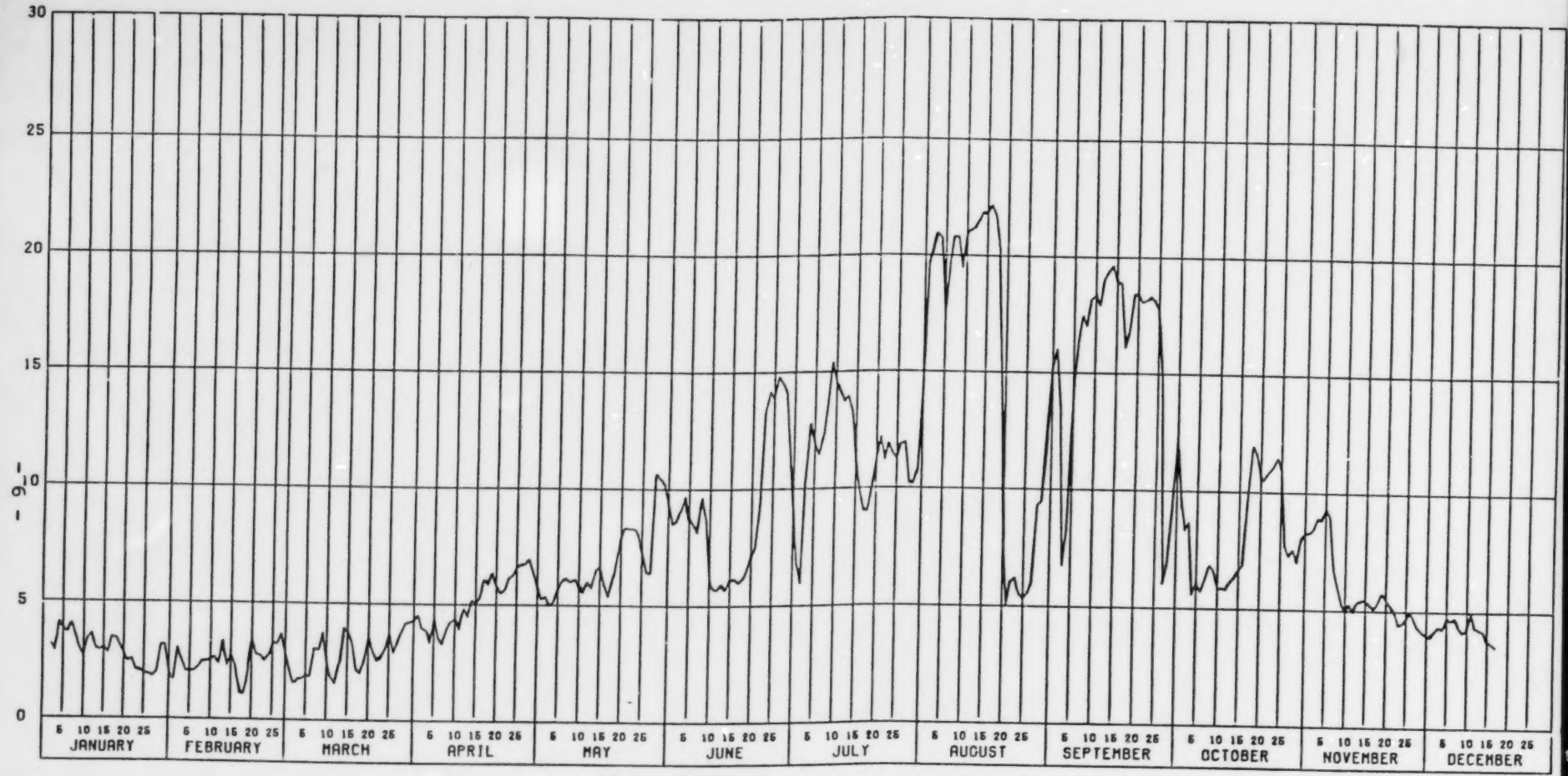


FIGURE 2
MEAN DAILY TEMPERATURES AT THE 12 m DEPTH OFFSHORE
FROM THE PICKERING NGS B DISCHARGE
(GEOTECHNICAL AND HYDRAULIC ENGINEERING LOCATION TH06) IN 1987

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sharp drops in temperature (upwellings), followed through August. Maximum mean daily temperatures of 22-23°C were recorded in August.

Major upwellings, resulting in temperature drops greater than 5°C, occurred in early July, mid-August, and early and late September. Minor upwellings resulting in drops of up to 5°C occurred in June, July and October.

Upwellings were underway during the following fishing periods: July and August beach seining, June, July and August trap netting, and June, July and October gill netting. Of these fishing periods the most drastic drop was recorded during the August trap netting when temperatures declined 14°C over a three day period (August 18-20).

## 3.2 Juvenile and Adult Fish Survey

In this section, monthly fish catches are described by gear type. The data are compared to the results of the 1979-1981 (preoperational study) and 1986 surveys which were similar to the present survey.

Complete fish catch data for beach seines are presented in Appendix I, for trap nets in Appendix II, and gill nets in Appendix III. The common and scientific names of the fish are presented in Appendix IV.

Temperatures recorded during fishing are presented in Appendix V for beach seining, Appendix VI for trap netting and in Appendix VII for gill netting. Maximum, minimum and average daily temperatures obtained from continuous temperatures recorded by the Geotechnical and Hydraulic Engineering Department of Design and Development Division at the 3m locations on the four transects fished are presented in Appendix VIII.

### Beach Seine

Beach seines sample small fish of the shallow inshore area. Most fish caught by this method that belong to large species are generally juveniles. The June beach seining was canceled due to inclement weather.

A total of 888 fish belonging to 23 species were taken in 72 beach seine hauls (Table 2). Alewife (*Alosa pseudoharengus*) was the most abundant species making up 31% of the total catch, followed by gizzard shad (*Dorosoma cepedianum*) and rainbow smelt (*Osmerus mordax*) which each made up 20% of the catch. Emerald shiner (*Notropis atherinoides*), longnose dace (*Rhinichthys cataractae*) and white bass (*Morone chrysops*) were the more common species in the remainder of the catch.

Beach seine catch was highest in August and lower in September and October than in the remaining months. Rainbow smelt was the main species taken in May, spottail shiner in July and October, and alewife in August and September.

Alewife were part of the beach seine catch from May through September. They were most abundant in August when they occurred in lower numbers at the Pickering NGS A and B discharges than at the remaining two locations. Their seasonal occurrence in the beach seines reflect Graham's (1957) description of their inshore spawning migration in Lake Ontario. Alewife move inshore in April through July arriving in greatest numbers in June. The adults then leave the inshore areas immediately following spawning, migrating back to deeper waters in late August.

TABLE 2

NUMBER AND PER CENT COMPOSITION OF FISH CAUGHT
BY BEACH SEINES - PICKERING NGS B 1987

| | MAY | | JULY | | AUGUST | | SEPTEMBER | | OCTOBER | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NUMBER | % | NUMBER | % | NUMBER | % | NUMBER | % | NUMBER | % | NUMBER | % |
| No of Sets | 12 | | 12 | | 12 | | 12 | | 12 | | 60 | |
| ALEWIFE | 69 | 26.6% | 42 | 23.5% | 150 | 17.1% | 12 | 26.1% | 0 | 0.0% | 273 | 30.7% |
| GIZZARD SHAD | 0 | 0.0% | 30 | 16.8% | 143 | 16.3% | 6 | 13.0% | 0 | 0.0% | 179 | 20.2% |
| RAINBOW SMELT | 157 | 60.6% | 2 | 1.1% | 1 | 0.1% | 19 | 41.3% | 0 | 0.0% | 179 | 20.2% |
| SPOTTAIL SHINER | 6 | 2.3% | 43 | 24.0% | 3 | 0.3% | 0 | 0.0% | 15 | 29.4% | 67 | 7.5% |
| EMERALD SHINER | 7 | 2.7% | 16 | 8.9% | 11 | 1.3% | 4 | 8.7% | 10 | 19.6% | 48 | 5.4% |
| LONGNOSE DACE | 13 | 5.0% | 10 | 5.6% | 13 | 1.5% | 2 | 4.3% | 6 | 11.8% | 44 | 5.0% |
| WHITE BASS | 0 | 0.0% | 11 | 6.1% | 21 | 2.4% | 0 | 0.0% | 1 | 2.0% | 33 | 3.7% |
| YELLOW PERCH | 0 | 0.0% | 17 | 9.5% | 0 | 0.0% | 0 | 0.0% | 5 | 9.8% | 22 | 2.5% |
| PUMPKINSEED | 0 | 0.0% | 0 | 0.0% | 1 | 0.1% | 0 | 0.0% | 9 | 17.6% | 10 | 1.1% |
| BROWN TROUT | 4 | 1.5% | 0 | 0.0% | 0 | 0.0% | 1 | 2.2% | 0 | 0.0% | 5 | 0.6% |
| LAKE CHUB | 1 | 0.4% | 0 | 0.0% | 4 | 0.5% | 0 | 0.0% | 0 | 0.0% | 5 | 0.6% |
| LOGPERCH | 0 | 0.0% | 3 | 1.7% | 1 | 0.1% | 0 | 0.0% | 0 | 0.0% | 4 | 0.5% |
| ROCK BASS | 0 | 0.0% | 3 | 1.7% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 3 | 0.3% |
| WHITE PERCH | 0 | 0.0% | 0 | 0.0% | 3 | 0.3% | 0 | 0.0% | 0 | 0.0% | 3 | 0.3% |
| SLIMY SCULPIN | 0 | 0.0% | 1 | 0.6% | 0 | 0.0% | 0 | 0.0% | 2 | 3.9% | 3 | 0.3% |
| COMMON SHINER | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 2 | 3.9% | 2 | 0.2% |
| BROWN BULLHEAD | 0 | 0.0% | 0 | 0.0% | 1 | 0.1% | 1 | 2.2% | 0 | 0.0% | 2 | 0.2% |
| CHINOOK SALMON | 1 | 0.4% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 1 | 0.1% |
| SMALLMOUTH BASS | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 1 | 2.0% | 1 | 0.1% |
| FATHEAD MINNOW | 0 | 0.0% | 1 | 0.6% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 1 | 0.1% |
| UNIDENTIFIED SHINER | 0 | 0.0% | 0 | 0.0% | 1 | 0.1% | 0 | 0.0% | 0 | 0.0% | 1 | 0.1% |
| COHO SALMON | 1 | 0.4% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 1 | 0.1% |
| MOTTLED SCULPIN | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 1 | 2.2% | 0 | 0.0% | 1 | 0.1% |
| BLUNTNOSE MINNOW | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% |
| CARP | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% |
| WHITE SUCKER | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% |
| RAINBOW TROUT | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% |
| TOTAL | 259 | 100.0% | 179 | 100.0% | 353 | 100.0% | 46 | 100.0% | 51 | 100.0% | 888 | 100.0% |

Gizzard shad were part of the beach seine catch from July through September. They were most abundant in August when catch was highest at the Pickering NGS B discharge and lowest at the Pickering NGS A discharge.

Of the 179 rainbow smelt taken by beach seine, 157 were taken in May. Rainbow smelt are spring spawners (Scott and Crossman 1973) and the higher numbers present in the shallow inshore areas in May were probably related to spawning.

Species diversity of the beach seine catches was higher in July (12) and August (13) than in the remaining months.

Average beach seine catch was highest at Duffin Creek (22.1 fish/haul, Table 3). Largest numbers of gizzard shad, spottail shiner and emerald shiner were taken at this location. Species diversity was also highest at Duffin Creek (21 species). The beaches are more extensive with a more gradual drop in depth at Duffin Creek than at the remaining locations. These features may provide a more desirable and extensive habitat for fish of shallow inshore areas. Beach seine catch was also higher at Duffin Creek than at the remaining locations in 1979, 1984, 1985 and 1986 (Ontario Hydro Research Division Report Nos 82-266-K, 87-149-K and 87-194-K).

Alewife catch was highest at Simcoe Point rather than at Duffin Creek as in 1986. Catch of rainbow smelt was higher at the Pickering NGS B discharge and Duffin Creek than at the remaining two locations while white bass was taken in higher numbers at the two discharge locations.

The 1987 average beach seine catch was substantially lower than the 1979-1981 average catches and slightly lower than the 1986 average catch (Table 4). The lower 1987 catch relative to that of 1986 is in part due to the lack of June 1987 data, a month in which large numbers of alewife were taken in 1986.

Alewife was also the most abundant species present in the 1979-1981 and 1986 beach seine catches. The average catch of alewife, like the total catch, was considerably lower than the 1979-1981 catches and was somewhat lower than the 1986 catch. Gizzard shad and spottail shiner catches were up from 1986 and were within the 1979-1981 range. Although rainbow smelt and emerald shiner catches were higher than in 1986 they were still lower than they had been in 1979-1981. Longnose dace catch was down from 1986 and was comparable to 1979-1981 catches. White bass catch increased substantially over that recorded in 1979-1980 and 1986. The increase in white bass near the discharges may indicate increased use of these nursery areas by juvenile white bass.

Trap Nets

The trap nets sampled fish of the inshore habitat to a depth of 3 m. A total of 6102 fish belonging to 18 species were taken in 96 nets (Table 5). Alewife was the most abundant fish taken in the trap nets (83%) followed by brown bullhead (*Ictalurus nebulosus*, 8%) and white sucker (*Catastomus commersoni*, 2%). White perch, white bass and yellow perch were among the more common species in the remainder of the catch.

Trap net catch was highest in July reflecting maximum seasonal catch of alewife. Alewife was the most abundant species in the monthly catches from May through July and in October. Brown bullhead was the most common species present in August and September.

TABLE 3

AVERAGE BEACH SEINE CATCH (FISH/HAUL) ALONG FOUR TRANSECTS - PICKERING NGS B

| | PICKERING NGS A DISCHARGE (15 HAULS) | PICKERING NGS B DISCHARGE (15 HAULS) | DUFFIN CREEK (15 HAULS) | SIMCOE POINT (15 HAULS) |
|---|---|---|---|---|
| ALEWIFE | 5.7 | 1.1 | 4.3 | 7.2 |
| GIZZARD SHAD | 0.6 | 4.6 | 5.5 | 1.3 |
| RAINBOW TROUT | 0.0 | 0.0 | 0.0 | 0.0 |
| BROWN TROUT | 0.1 | 0.1 | 0.1 | 0.1 |
| RAINBOW SMELT | 1.9 | 4.3 | 4.1 | 1.6 |
| WHITE SUCKER | 0.0 | 0.0 | 0.0 | 0.0 |
| YELLOW PERCH | 0.5 | 0.0 | 0.3 | 0.7 |
| LAKE CHUB | 0.0 | 0.0 | 0.3 | 0.0 |
| CARP | 0.0 | 0.0 | 0.0 | 0.0 |
| EMERALD SHINER | 0.7 | 0.4 | 2.0 | 0.1 |
| SPOTTAIL SHINER | 0.6 | 0.3 | 3.6 | 0.0 |
| COHO SALMON | 0.1 | 0.0 | 0.0 | 0.0 |
| CHINOOK SALMON | 0.0 | 0.0 | 0.0 | 0.1 |
| BLUNTNOSE MINNOW | 0.0 | 0.0 | 0.0 | 0.0 |
| FATHEAD MINNOW | 0.0 | 0.0 | 0.1 | 0.0 |
| LONGNOSE DACE | 0.2 | 0.1 | 0.9 | 1.8 |
| BROWN BULLHEAD | 0.1 | 0.0 | 0.1 | 0.0 |
| WHITE PERCH | 0.0 | 0.1 | 0.1 | 0.0 |
| WHITE BASS | 1.1 | 1.0 | 0.1 | 0.0 |
| ROCK BASS | 0.0 | 0.1 | 0.1 | 0.0 |
| PUMPKINSEED | 0.1 | 0.3 | 0.3 | 0.1 |
| SMALLMOUTH BASS | 0.0 | 0.0 | 0.1 | 0.0 |
| LOGPERCH | 0.1 | 0.0 | 0.1 | 0.1 |
| SLIMY SCULPIN | 0.0 | 0.0 | 0.1 | 0.1 |
| UNIDENTIFIED SHINER | 0.0 | 0.0 | 0.1 | 0.0 |
| MOTTLED SCULPIN | 0.0 | 0.0 | 0.1 | 0.0 |
| COMMON SHINER | 0.0 | 0.0 | 0.1 | 0.0 |
| TOTAL | 11.7 | 12.3 | 22.1 | 13.1 |

TABLE 4

COMPARISON OF BEACH SEINE CATCH - 1979, 1980, 1981, 1986 AND 1987

| | 1979 | 1980 | 1981 | 1986 | 1987 |
|---|---|---|---|---|---|
| | | | AVERAGE CATCH PER HAUL | | |
| BROWN BULLHEAD | <0.1 | <0.1 | 1.5 | 0.1 | <0.1 |
| RAINBOW SMELT | 1.3 | 7.6 | 1 | 0.6 | 3 |
| SPOTTAIL SHINER | 2.8 | 3.2 | 1.2 | 0.4 | 1.1 |
| ALEWIFE | 18 | 14.1 | 36.8 | 11.3 | 4.6 |
| WHITE PERCH | 0.2 | 0.1 | 0.5 | 0.2 | 0.1 |
| GIZZARD SHAD | 4.8 | 0.4 | 6.6 | <0.1 | 3 |
| YELLOW PERCH | 1.1 | 0.9 | <0.1 | 0 | 0.4 |
| LONGNOSE DACE | 0.7 | 0.7 | 0.8 | 1.2 | 0.7 |
| RAINBOW TROUT | 0.1 | 0.1 | <0.1 | 0.6 | 0 |
| FATHEAD MINNOW | <0.1 | 1.5 | 1 | <0.1 | <0.1 |
| WHITE SUCKER | 2.2 | 0.9 | 0.5 | <0.1 | 0 |
| EMERALD SHINER | 1.5 | 2.2 | 1.2 | 0.4 | 0.8 |
| BLUNTNOSE MINNOW | <0.1 | 0.3 | <0.1 | <0.1 | 0 |
| WHITE BASS | 0 | <0.1 | <0.1 | <0.1 | 0.6 |
| TOTAL NUMBER | 3954 | 3478 | 4386 | 1106 | 888 |
| AVERAGE CATCH PER HAUL | 47.7 | 33.4 | 60.9 | 15.4 | 14.8 |
| NUMBER OF SPECIES | 24 | 28 | 29 | 21 | 23 |
| NUMBER OF HAULS | 72 | 72 | 72 | 72 | 60 |

TABLE 5

NUMBER AND PER CENT COMPOSITION OF FISH CAUGHT
BY TRAP NETS - PICKERING NGS B, 1987

| | MAY | | JUNE | | JULY | | AUGUST | | SEPTEMBER | | OCTOBER | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NUMBER | % | NUMBER | % | NUMBER | % | NUMBER | % | NUMBER | % | NUMBER | % | NUMBER | % |
| No of Sets | 16 | | 16 | | 16 | | 16 | | 16 | | 15 | | 95 | |
| ALEWIFE | 604 | 93.21% | 998 | 93.45% | 3170 | 90.03% | 35 | 9.92% | 8 | 4.94% | 274 | 78.29% | 5089 | 83.40% |
| BROWN BULLHEAD | 0 | 0.00% | 56 | 5.24% | 265 | 7.53% | 132 | 37.39% | 59 | 36.42% | 0 | 0.00% | 512 | 8.39% |
| WHITE SUCKER | 30 | 4.63% | 11 | 1.03% | 34 | 0.97% | 12 | 3.40% | 10 | 6.17% | 38 | 10.86% | 135 | 2.21% |
| WHITE PERCH | 2 | 0.31% | 0 | 0.00% | 10 | 0.28% | 55 | 15.58% | 12 | 7.41% | 10 | 2.86% | 89 | 1.46% |
| WHITE BASS | 0 | 0.00% | 0 | 0.00% | 6 | 0.17% | 21 | 5.95% | 34 | 20.99% | 13 | 3.71% | 74 | 1.21% |
| YELLOW PERCH | 4 | 0.62% | 0 | 0.00% | 23 | 0.65% | 28 | 7.93% | 7 | 4.32% | 8 | 2.29% | 70 | 1.15% |
| PUMPKINSEED | 1 | 0.15% | 1 | 0.09% | 0 | 0.00% | 39 | 11.05% | 10 | 6.17% | 4 | 1.14% | 55 | 0.90% |
| CARP | 0 | 0.00% | 0 | 0.00% | 9 | 0.26% | 12 | 3.40% | 9 | 5.56% | 2 | 0.57% | 32 | 0.52% |
| ROCK BASS | 2 | 0.31% | 1 | 0.09% | 4 | 0.11% | 6 | 1.70% | 2 | 1.23% | 1 | 0.29% | 16 | 0.26% |
| SMALLMOUTH BASS | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 9 | 2.55% | 0 | 0.00% | 0 | 0.00% | 9 | 0.15% |
| BROWN TROUT | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 8 | 4.94% | 0 | 0.00% | 8 | 0.13% |
| RAINBOW SMELT | 5 | 0.77% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 5 | 0.08% |
| NORTHERN PIKE | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 3 | 0.85% | 0 | 0.00% | 0 | 0.00% | 3 | 0.05% |
| CHANNEL CATFISH | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 1 | 0.62% | 0 | 0.00% | 1 | 0.02% |
| BOWFIN | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 1 | 0.28% | 0 | 0.00% | 0 | 0.00% | 1 | 0.02% |
| WALLEYE | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 1 | 0.62% | 0 | 0.00% | 1 | 0.02% |
| BLACK CRAPPIE | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 1 | 0.62% | 0 | 0.00% | 1 | 0.02% |
| AMERICAN EEL | 0 | 0.00% | 1 | 0.09% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 1 | 0.02% |
| TOTAL | 648 | 100.00% | 1068 | 100.00% | 3521 | 100.00% | 353 | 100.00% | 162 | 100.00% | 350 | 100.00% | 6102 | 100.00% |

Alewife and brown bullhead catches increased between May and July and then declined through September. Alewife numbers increased again in October when a large number were taken exclusively at Duffin Creek. The seasonal catch of alewife from May through September reflects their spawning migration pattern.

White sucker catch fluctuated from month to month. White perch and yellow perch were taken in highest numbers in July and white bass was taken in highest numbers in August.

The largest number of fish were taken by trap nets set at the Pickering NGS A discharge (Table 6). A very large catch of alewife at this location in July accounts for the high average catch. Average catches of alewife, brown bullhead, white perch and white bass were highest at the Pickering NGS A discharge. Yellow perch was taken in highest numbers at Duffin Creek. White perch and white bass were consistently taken in higher numbers at the Pickering NGS A discharge. All smallmouth bass (9) caught by trap net were taken at the Pickering NGS A discharge in August. The largest number of pumpkinseed was taken in August when 38 out of the 39 fish taken were caught at the Pickering NGS A discharge A major upwelling was underway during the August trap netting which resulted in a drop of about 10°C over the three day fishing period (Appendix VI). The temperature was also highest at the Pickering NGS A discharge in the remaining months. Thus the higher numbers of fish belonging to these warm water species at the Pickering NGS A discharge may have been related to temperature.

Average trap net catch was down considerably from 1986 but was still within the range recorded during the 1979-1981 preoperational studies (Table 7). The drop was mainly accounted for by a large drop in alewife catch. Yellow perch, white perch and pumpkinseed catches were higher in 1987 than in 1986 although yellow and white perch catches were still somewhat lower than they had been during the preoperational studies. As in the beach seines, the white bass catch in trap nets was higher than it had been in 1979-1981 and in 1986.

Gill Nets

The gill nets sampled fish inhabiting the bottom strata at depths of 3 to 14 m. A total of 24749 fish were taken in 111 nets (Table 8). As in the beach seines and trap nets, alewife was the most abundant species in the gill nets making up 88 % of the total catch. White sucker made up 3.1% of the catch followed by lake trout (*Salvelinus namaycush*) which made up 1.9%. Yellow perch (*Perca flavescens*), brown trout (*Salmo trutta*), white perch, gizzard shad and round whitefish (*Prosopium cylindraceum*) were among the more common species in the remainder of the catch.

Monthly catches were numerically dominated by alewife from May through October. Lake trout, a fall spawner, was the most abundant species present in the November catch.

Monthly gill net catch increased from May through July and then declined through November. The seasonality of the total fish catch reflected that of the alewife and coincided with its spawning migration pattern in Lake Ontario.

The seasonal catch of lake trout reflects its preference for cold water. Its catch declined between May and June, remained low through September, peaked in October and remained high through November. Lake trout were absent from the August catch when maximum water temperatures prevailed.

As in previous years, white sucker were found in highest numbers in months following their May-June spawning period (Scott and Crossman 1973). During the present survey, largest numbers were taken in August and October.

TABLE 6

AVERAGE TRAP NET CATCH (FISH/NET) ALONG FOUR TRANSECTS - PICKERING NGS B, 1987

| | PICKERING NGS A DISCHARGE (24 NETS) | PICKERING NGS B DISCHARGE (24 NETS) | DUFFINS CREEK (24 NETS) | SIMCOE POINT (24 NETS) |
|---|---|---|---|---|
| ALEWIFE | 96.2 | 23.3 | 72.3 | 20.3 |
| BROWN BULLHEAD | 11.3 | 2.5 | 5.5 | 2.0 |
| WHITE SUCKER | 0.5 | 1.8 | 2.6 | 0.6 |
| WHITE PERCH | 2.9 | 0.3 | 0.3 | 0.3 |
| WHITE BASS | 2.8 | 0.2 | 0.1 | <0.1 |
| YELLOW PERCH | 0.5 | <0.1 | 1.9 | 0.4 |
| PUMPKINSEED | 2.0 | 0.1 | 0.1 | <0.1 |
| CARP | 1.0 | 0.2 | 0.1 | <0.1 |
| ROCK BASS | 0.2 | 0.2 | 0.3 | <0.1 |
| SMALLMOUTH BASS | 0.4 | 0.0 | 0.0 | 0.0 |
| BROWN TROUT | 0.0 | <0.1 | 0.3 | 0.0 |
| LONGNOSE SUCKER | 0.1 | 0.0 | 0.2 | 0.0 |
| RAINBOW SMELT | 0.0 | 0.2 | <0.1 | 0.0 |
| CHANNEL CATFISH | <0.1 | 0.0 | 0.0 | 0.0 |
| BOWFIN | <0.1 | 0.0 | 0.0 | 0.0 |
| WALLEYE | 0.0 | <0.1 | 0.0 | 0.0 |
| BLACK CRAPPIE | <0.1 | 0.0 | 0.0 | 0.0 |
| AMERICAN EEL | <0.1 | 0.0 | 0.0 | 0.0 |
| TOTAL | 118.1 | 29.0 | 83.6 | 23.8 |

TABLE 7

COMPARISON OF TRAP NET CATCH - 1979, 1980, 1981, 1986 AND 1987

| | 1979 | 1980 | 1981 | 1986 | 1987 |
|---|---|---|---|---|---|
| | AVERAGE CATCH PER NET | | | | |
| ALEWIFE | 24.3 | 7.1 | 86.1 | 121.9 | 53 |
| RAINBOW SMELT | 0.5 | 2.4 | 6.3 | 0.1 | <0.1 |
| WHITE SUCKER | 2.1 | 3.7 | 3.2 | 2.4 | 1.4 |
| BROWN BULLHEAD | 16.2 | 7.5 | 52.7 | 12.7 | 5.3 |
| YELLOW PERCH | 1.1 | 3.4 | 3.4 | 0.6 | 0.7 |
| WHITE PERCH | 1.2 | 1 | 1 | 0.7 | 0.9 |
| PUMPKINSEED | 0.6 | 0.1 | 0.3 | 0.1 | 0.6 |
| WHITE BASS | 0.3 | <0.1 | 0.3 | 0.1 | 0.8 |
| TOTAL NUMBER | 5332 | 3281 | 14799 | 15653 | 6102 |
| AVERAGE CATCH PER NET | 47.6 | 25.8 | 154.2 | 139.8 | 64.2 |
| NUMBER OF SPECIES | 17 | 21 | 16 | 20 | 18 |
| NUMBER OF NETS | 112 | 127 | 96 | 112 | 95 |

TABLE 8

NUMBER AND PER CENT COMPOSITION OF FISH CAUGHT
BY GILL NETS - PICKERING NGS B, 1987

| | MAY | | JUNE | | JULY | | AUGUST | | SEPTEMBER | | OCTOBER | | NOVEMBER | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NUMBER | % | NUMBER | % | NUMBER | % | NUMBER | % | NUMBER | % | NUMBER | % | NUMBER | % | NUMBER | % |
| No of Sets | 16 | | 16 | | 16 | | 16 | | 15 | | 16 | | 16 | | 111 | |
| ALEWIFE | 2010 | 86.45% | 4668 | 97.15% | 12355 | 98.08% | 2224 | 79.20% | 258 | 30.42% | 358 | 35.55% | 2 | 0.56% | 21875 | 88.39% |
| WHITE SUCKER | 100 | 4.30% | 54 | 1.12% | 89 | 0.71% | 160 | 5.70% | 93 | 10.97% | 177 | 17.58% | 81 | 22.56% | 754 | 3.05% |
| LAKE TROUT | 70 | 3.01% | 17 | 0.35% | 24 | 0.19% | 0 | 0.00% | 4 | 0.47% | 239 | 23.73% | 119 | 33.15% | 473 | 1.91% |
| YELLOW PERCH | 4 | 0.17% | 1 | 0.02% | 7 | 0.06% | 129 | 4.59% | 118 | 13.92% | 37 | 3.67% | 2 | 0.56% | 298 | 1.20% |
| BROWN TROUT | 76 | 3.27% | 23 | 0.48% | 24 | 0.19% | 38 | 1.35% | 26 | 3.07% | 28 | 2.78% | 70 | 19.50% | 285 | 1.15% |
| WHITE PERCH | 0 | 0.00% | 1 | 0.02% | 0 | 0.00% | 65 | 2.31% | 72 | 8.49% | 38 | 3.77% | 22 | 6.13% | 198 | 0.80% |
| GIZZARD SHAD | 1 | 0.04% | 0 | 0.00% | 12 | 0.10% | 62 | 2.21% | 67 | 7.90% | 38 | 3.77% | 14 | 3.90% | 194 | 0.78% |
| ROUND WHITEFISH | 46 | 1.98% | 18 | 0.37% | 34 | 0.27% | 2 | 0.07% | 6 | 0.71% | 53 | 5.26% | 23 | 6.41% | 182 | 0.74% |
| BROWN BULLHEAD | 0 | 0.00% | 0 | 0.00% | 7 | 0.06% | 72 | 2.56% | 56 | 6.60% | 0 | 0.00% | 0 | 0.00% | 135 | 0.55% |
| RAINBOW SMELT | 9 | 0.39% | 17 | 0.35% | 20 | 0.16% | 3 | 0.11% | 24 | 2.83% | 17 | 1.69% | 0 | 0.00% | 90 | 0.36% |
| COHO SALMON | 1 | 0.04% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 64 | 7.55% | 0 | 0.00% | 0 | 0.00% | 65 | 0.26% |
| WHITE BASS | 6 | 0.26% | 0 | 0.00% | 4 | 0.03% | 5 | 0.18% | 23 | 2.71% | 9 | 0.89% | 11 | 3.06% | 58 | 0.23% |
| CARP | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 16 | 0.57% | 7 | 0.83% | 0 | 0.00% | 1 | 0.28% | 24 | 0.10% |
| ROCK BASS | 0 | 0.00% | 0 | 0.00% | 1 | 0.01% | 16 | 0.57% | 5 | 0.59% | 2 | 0.20% | 0 | 0.00% | 24 | 0.10% |
| LONGNOSE SUCKER | 2 | 0.09% | 1 | 0.02% | 10 | 0.08% | 2 | 0.07% | 2 | 0.24% | 0 | 0.00% | 0 | 0.00% | 17 | 0.07% |
| SMALLMOUTH BASS | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 5 | 0.18% | 7 | 0.83% | 2 | 0.20% | 0 | 0.00% | 14 | 0.06% |
| FRESHWATER DRUM | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 3 | 0.11% | 7 | 0.83% | 1 | 0.10% | 2 | 0.56% | 13 | 0.05% |
| CHINOOK SALMON | 0 | 0.00% | 2 | 0.04% | 9 | 0.07% | 1 | 0.04% | 0 | 0.00% | 1 | 0.10% | 0 | 0.00% | 13 | 0.05% |
| WALLEYE | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 1 | 0.04% | 4 | 0.47% | 2 | 0.20% | 4 | 1.11% | 11 | 0.04% |
| RAINBOW TROUT | 0 | 0.00% | 0 | 0.00% | 1 | 0.01% | 0 | 0.00% | 2 | 0.24% | 0 | 0.00% | 6 | 1.67% | 9 | 0.04% |
| LAKE WHITEFISH | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 3 | 0.30% | 2 | 0.56% | 5 | 0.02% |
| NORTHERN PIKE | 0 | 0.00% | 1 | 0.02% | 0 | 0.00% | 1 | 0.04% | 0 | 0.00% | 1 | 0.10% | 0 | 0.00% | 3 | 0.01% |
| LAKE CHUB | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 2 | 0.07% | 1 | 0.12% | 0 | 0.00% | 0 | 0.00% | 3 | 0.01% |
| REDHORSE SUCKER | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 1 | 0.12% | 1 | 0.10% | 0 | 0.00% | 2 | 0.01% |
| LOGPERCH | 0 | 0.00% | 2 | 0.04% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 2 | 0.01% |
| PUMPKINSEED | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 1 | 0.04% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 1 | 0.00% |
| PINK SALMON | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 0 | 0.00% | 1 | 0.12% | 0 | 0.00% | 0 | 0.00% | 1 | 0.00% |
| TOTAL | 2325 | 100.00% | 4805 | 100.00% | 12597 | 100.00% | 2808 | 100.00% | 848 | 100.00% | 1007 | 100.00% | 359 | 100.00% | 24749 | 100.00% |

Yellow perch occurred in higher numbers in August and September and were only taken in low numbers in the remaining months. Yellow perch generally spawn from late-April to early-May. Thus their presence in larger numbers in August and September was not associated with spawning.

Brown trout were taken in higher numbers in May and November than in the remaining months.

White perch catch was generally limited to the August through November period with largest numbers taken in September. The low trap net and gill net catches of this species during its spring spawning period suggests that large numbers probably do not spawn in the study area. A similar suggestion was made in the 1986 report (Ontario Hydro Research Division Report No 87-194-K) based on 1979-1981 and 1986 data.

Few gizzard shad were taken from May through July. In the remaining months, catches were higher in August and September than in October and November. This seasonal occurrence differs from that of the preoperational and 1986 studies when maximum numbers were always taken in October or November.

Round whitefish were part of the gill net catch throughout the fishing season (May through November) with highest numbers taken in October. Although ripe females were present in the October catch, the larger numbers caught in this month was not part of the peak spawning run (see Section 3.3). During the 1986 fish survey, largest numbers were also taken in October. Although ripe females were also present in the 1986 October catch, the peak spawning migration did not occur until mid-December.

Total gill net catch reflected alewife catch with highest numbers taken at Duffin Creek and lowest numbers taken at the Pickering NGS A discharge (Table 9). White sucker were also taken in lowest numbers at the Pickering NGS A discharge and highest numbers at Duffin Creek.

As in 1984-1986 lake trout catch increased from west to east. A two-way analyses of variance on log transformed lake trout catch data with location and month as variables indicated significant ($P<0.01$) differences between locations as well as months. No significant interaction was found between the two variables. Duncan's Multiple Range Test indicated that the catch at the Pickering NGS A discharge was significantly lower than at the remaining locations. At the time of their maximum occurrence in October, lake trout were taken in much higher numbers at 3 m than at 12 m. Brown trout, taken in highest numbers at the Pickering NGS A discharge, were also more abundant at 3m at the time of their maximum occurrence (November). The larger numbers of these fall spawners found inshore in October may have been related to their spawning migrations. Two-way analyses of variance performed on log transformed brown trout catch data with location and month as variables indicated no significant ($P>0.01$) differences between locations or months; nor was their a significant interaction between the two variables.

White perch and white bass were most abundant at the Pickering NGS B discharge and yellow perch and round whitefish were most abundant at the Pickering NGS A discharge. Of the white perch taken at the Pickering NGS B discharge from September through November, all but a single fish were taken in the 3 m nets.

A large catch of round whitefish (29) at the Pickering NGS A discharge in May resulted in the high average catch for this location. All but one of these round whitefish were taken at 12 m.

Average catch of gizzard shad was highest at the Pickering NGS A discharge. Its preference for the Pickering NGS A discharge was also apparent during the preoperational and 1986 surveys.

TABLE 9

AVERAGE GILL NET CATCH (FISH/NET) ALONG FOUR TRANSECTS - PICKERING NGS B, 1987

| | PICKERING NGS A DISCHARGE (27 NETS) | PICKERING NGS B DISCHARGE (28 NETS) | DUFFINS CREEK (28 NETS) | SIMCOE POINT (28 NETS) |
|---|---|---|---|---|
| ALEWIFE | 125.9 | 198.6 | 275.8 | 185.4 |
| WHITE SUCKER | 4.7 | 7.0 | 8.7 | 6.6 |
| LAKE TROUT | 1.6 | 4.1 | 5.3 | 5.9 |
| YELLOW PERCH | 5.0 | 0.6 | 4.1 | 1.1 |
| BROWN TROUT | 3.9 | 2.9 | 2.5 | 1.0 |
| WHITE PERCH | 1.4 | 4.9 | 0.5 | 0.3 |
| GIZZARD SHAD | 3.0 | 0.8 | 2.6 | 0.7 |
| ROUND WHITEFISH | 3.0 | 1.0 | 1.5 | 1.1 |
| BROWN BULLHEAD | 1.2 | 0.4 | 2.5 | 0.8 |
| RAINBOW SMELT | 1.6 | 0.7 | 0.6 | 0.4 |
| COHO SALMON | 0.4 | 0.3 | 1.1 | 0.5 |
| WHITE BASS | 0.4 | 0.8 | 0.7 | 0.3 |
| CARP | 0.4 | 0.3 | 0.2 | 0.0 |
| ROCK BASS | <0.1 | 0.3 | 0.3 | 0.3 |
| LONGNOSE SUCKER | 0.3 | 0.1 | <0.1 | 0.2 |
| SMALLMOUTH BASS | 0.1 | 0.1 | 0.1 | 0.2 |
| CHINOOK SALMON | 0.3 | 0.0 | 0.1 | <0.1 |
| FRESHWATER DRUM | 0.0 | 0.2 | 0.2 | 0.1 |
| WALLEYE | <0.1 | 0.2 | 0.1 | 0.1 |
| RAINBOW TROUT | <0.1 | 0.1 | 0.2 | <0.1 |
| LAKE WHITEFISH | 0.1 | 0.0 | 0.1 | 0.0 |
| LAKE CHUB | 0.1 | 0.0 | 0.0 | <0.1 |
| NORTHERN PIKE | <0.1 | 0.0 | <0.1 | <0.1 |
| REDHORSE SUCKER | <0.1 | 0.0 | <0.1 | 0.0 |
| LOGPERCH | <0.1 | 0.0 | <0.1 | 0.0 |
| PUMPKINSEED | 0.0 | 0.0 | 0.0 | <0.1 |
| PINK SALMON | 0.0 | <0.1 | 0.0 | 0.0 |
| TOTAL | 153.6 | 223.4 | 307.2 | 205.2 |

The apparent attraction of white perch, white bass, smallmouth bass and walleye to the discharge areas in November of 1986 was not observed in November of 1987. These species also demonstrated a preference for the warmer discharge areas in late fall during the preoperational studies. Although temperatures recorded during the November setting and pulling of the gill nets indicate higher temperatures at the 3 m discharge areas when nets were set, average daily temperatures recorded (Appendix VIII) at the 3 m locations along all four transects were not higher at the discharge locations.

As a result of higher catches of alewife, total catch was up from 1979-1981 and 1986 (Table 10). Average catches of white sucker, yellow perch, gizzard shad, brown bullhead and white bass were up from 1986 and were within their 1979-1981 ranges. Brown trout and coho salmon were taken in higher numbers in 1987 than in previous studies. The increase in lake trout and brown trout relative to the preoperational study is a result of steady stocking since the early seventies (Ontario Ministry of Natural Resources unpublished data). Coho salmon have been stocked since the late sixties at a lower level than lake trout and brown trout.

Gill net catch of lake trout and round whitefish were down from 1986 but were still higher than they were during the preoperational study. Rainbow smelt numbers which dropped dramatically between the preoperational study and 1986 were slightly lower than in 1986. White perch catch was down from 1986, but was within the 1979-1981 range. The only new record was of a pink salmon caught in the Pickering NGS B 3 m net in September.

As in 1986, lake trout dominated the gill net catch in terms of biomass. The mean weight of lake trout taken in the gill nets in 1987 was 2.9 kg (N=134, SD=1.2). Based on this mean weight, the total biomass of lake trout in the gill net catch was 1,372 kg compared to 656 kg (based on an average weight of 30 g, Ontario Hydro Research Division Report No 80-382-K) for alewife. In 1984 and 1985 alewife dominated the gill net catch both numerically and in terms of biomass (Ontario Hydro Research Report No 87-149-K). Mean weight of brown trout in the gill net catch was 2 kg (N=239, SD=1.2) and total biomass was 570 kg, up from 320 kg in the 1986 gill net catch.

Lake Trout and Brown Trout Stomach Analysis

Stomach analysis results are presented in Table 11. The number of occurrences represent the total number of individual prey fish found in the stomachs.

Of the total identifiable prey present in lake trout stomachs, rainbow smelt (71%) followed by alewife (23%) were the most abundant. Sculpin (unidentified) and gizzard shad made up the remainder of the contents.

Identifiable prey in brown trout stomachs consisted predominantly of alewife (38%), similar proportions of rainbow smelt and gizzard shad (31%), and a very small portion of sculpin (1%).

Recognizable prey species in coho salmon stomachs consisted of alewife and rainbow smelt only, with the former making up 81% of the total numbers.

When the relative abundances of the prey species in individual stomachs are averaged, the mean percentages of prey species in lake trout were 23% alewife, 69% rainbow smelt, 5% sculpin and 3% gizzard shad. Mean percentages of prey species in brown trout were 49% alewife, 42% rainbow smelt, 7% gizzard shad and 2% sculpin. The proportion of prey species in brown trout is quite different when presented in this manner because 33 of the 34 shad were taken from a single

TABLE 10

COMPARISON OF GILL NET CATCH - 1979, 1980, 1981, 1986 AND 1987

| | 1979 | 1980 | 1981 | 1986 | 1987 |
|---|---|---|---|---|---|
| | AVERAGE CATCH PER NET | | | | |
| ALEWIFE | 160.8 | 85.4 | 97.9 | 134.2 | 196.4 |
| RAINBOW SMELT | 16.1 | 4.8 | 8.9 | 0.9 | 0.8 |
| WHITE SUCKER | 8.7 | 4.8 | 6.6 | 6 | 6.8 |
| BROWN BULLHEAD | 2.7 | 0.7 | 0.6 | <0.1 | 1.2 |
| YELLOW PERCH | 2.2 | 3 | 1.3 | 0.5 | 2.7 |
| WHITE PERCH | 1.4 | 2 | 0.4 | 3.5 | 1.8 |
| GIZZARD SHAD | 4.7 | 1.1 | 3.6 | 1.5 | 1.8 |
| ROUND WHITEFISH | 0.8 | 0.6 | 1.2 | 2 | 1.7 |
| BROWN TROUT | 0.2 | 0.4 | 0.5 | 1.6 | 2.6 |
| LAKE TROUT | 0 | <0.1 | 0 | 7.3 | 4.2 |
| WHITE BASS | 0.4 | 0.2 | 0.7 | 0.2 | 0.5 |
| TOTAL NUMBER | 19739 | 15352 | 15894 | 17763 | 24749 |
| AVERAGE CATCH PER NET | 199.4 | 103.7 | 124.2 | 158.6 | 222.3 |
| NUMBER OF SPECIES | 22 | 26 | 25 | 27 | 27 |
| NUMBER OF NETS | 99 | 148 | 128 | 112 | 111 |

TABLE 11

STOMACH ANALYSIS OF LAKE TROUT, BROWN TROUT AND COHO SALMON
COLLECTED FROM APRIL THROUGH NOVEMBER, 1987

| | | | CONTENTS | | | | |
|---|---|---|---|---|---|---|---|
| | EMPTY STOMACHS | STOMACHS WITH CONTENTS | UNRECOG-NIZABLE | ALEWIFE | RAINBOW SMELT | GIZZARD SHAD | SCULPIN |
| Species | Number of Occurrences | | | | | | |
| LAKE TROUT | 46 | 58 | 108 | 37 | 115 | 2 | 7 |
| BROWN TROUT | 60 | 91 | 145 | 42 | 35 | 34 | 1 |
| COHO SALMON | 14 | 28 | 56 | 21 | 5 | 0 | 0 |

stomach. In the case of coho salmon, the mean percent of alewife was 77% and that of rainbow smelt was 23%.

A larger proportion of lake trout and brown trout stomachs collected from April through July had contents than those collected from August through November. The larger percentage of stomachs with contents collected during the April though July period reflects the maximum seasonal occurrences of smelt and alewife in the study area.

Of the 104 lake trout stomachs collected for analysis, 58 (56%) had contents. In the case of the brown trout stomachs, 91 (60%) of the 151 stomachs had contents and 28 (67%) of the 42 coho salmon stomachs had contents. There were no consistent monthly differences in the proportions of stomachs with contents between the fishing locations. When total numbers of lake trout with contents at discharge and non-discharge locations were compared using the Chi-square test (Seigel 1956), non-discharge fish were found to have a significantly larger number of stomachs with contents. However, the proportion of recently consumed prey fish and digested or semi-digested fish in the stomachs from fish taken at discharge or non-discharge locations were quite similar. If the differences in the proportion of fish with contents between discharge and non-discharge locations was related to availability of prey, a difference might be expected in the proportions of recently consumed and digested or semi-digested prey in the stomachs.

### 3.3 Round Whitefish Spawning Study

Complete round whitefish data are presented in Appendix IX and temperature data are presented in Appendix X.

A Total of 815 fish belonging to 16 species were taken in 36 gill nets (Table 12). Round whitefish was the most common species present contributing to 37% of the total catch. Brown trout followed with 26% of the catch. White sucker, white perch and lake trout were among the more common species in the remainder of the catch.

The largest number of fish were taken on November 26-27. Round whitefish was the most abundant species present on all three fishing occasions and was caught in highest numbers on November 26-27 when 120 of a total of 263 were taken. Both ripe and spent females were taken during this survey. Ripe females were caught at all six locations while spent females were taken at Richardson Point, Whitby West and Thickson Point.

In past surveys (Darlington '76, '77,'80 and '84; Pickering 1979-1986) highest catches of round whitefish have generally been taken in early to mid December (Ontario Hydro Research Division Report Nos 82-266-K, 87-82-K, 87-149-K, 87-181-K, and 87-194-K). At Darlington, maximum round whitefish numbers were taken in the week following our last gill netting efforts (J.S. Griffiths personal communication). Thus the peak spawning period in our study area may also have occurred in mid-December. Unfortunately, treacherous weather conditions in addition to boat problems precluded fishing beyond December 8-9.

Lake trout and brown trout were taken in highest numbers on November 26-27. The decline in their numbers in December may have been a result of post-spawning dispersal although it is not known whether they spawn in the study area.

Larger numbers of round whitefish were caught at the Pickering NGS B discharge and Thickson Point than at the remaining locations on all three fishing occasions (Table 13). The largest single catch (35) of this species was taken in the 7 m net at the Pickering NGS B discharge on November 26. The largest catch was also taken at this location in 1986. Larger numbers of

TABLE 12

ROUND WHITEFISH STUDY - PICKERING NGS B 1987
TOTAL FISH CATCH

| | NOVEMBER 8-9 | | DECEMBER 2-3 | | DECEMBER 8-9 | | TOTAL | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 3M | 7M | 3M | 7M | 3M | 7M | 3M | 7M | NUMBER | % |
| ROUND WHITEFISH | 37 | 83 | 28 | 45 | 32 | 38 | 97 | 166 | 263 | 32.27 |
| BROWN TROUT | 52 | 40 | 31 | 21 | 14 | 26 | 97 | 87 | 184 | 22.58 |
| WHITE SUCKER | 42 | 27 | 26 | 4 | 18 | 9 | 86 | 40 | 126 | 15.46 |
| WHITE PERCH | 33 | 4 | 28 | 16 | 12 | 10 | 73 | 30 | 103 | 12.64 |
| LAKE TROUT | 7 | 33 | 6 | 8 | 1 | 5 | 14 | 46 | 60 | 7.36 |
| YELLOW PERCH | 3 | 4 | 11 | 8 | 3 | 0 | 17 | 12 | 29 | 3.56 |
| WHITE BASS | 2 | 2 | 9 | 3 | 2 | 3 | 13 | 8 | 21 | 2.58 |
| RAINBOW TROUT | 3 | 0 | 3 | 1 | 2 | 0 | 8 | 1 | 9 | 1.10 |
| GIZZARD SHAD | 5 | 0 | 0 | 0 | 1 | 1 | 6 | 1 | 7 | 0.86 |
| CARP | 1 | 0 | 1 | 0 | 1 | 0 | 3 | 0 | 3 | 0.37 |
| ALEWIFE | 0 | 1 | 1 | 2 | 0 | 0 | 1 | 3 | 4 | 0.49 |
| COHO SALMON | 1 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 2 | 0.25 |
| LAKE CHUB | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0.12 |
| CHINOOK SALMON | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0.12 |
| LAKE WHITEFISH | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0.12 |
| LONGNOSE SUCKER | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0.12 |
| TOTAL | 186 | 198 | 145 | 108 | 86 | 92 | 417 | 398 | 815 | 100.00 |

TABLE 13

ROUND WHITEFISH STUDY - PICKERING NGS B 1987
FISH CATCH BY LOCATION

| | PICKERING A DISCHARGE (6 NETS) | PICKERING B DISCHARGE (6 NETS) | SIMCOE POINT (6 NETS) | RICHARDSON POINT (6 NETS) | WHITBY WEST (6 NETS) |
|---|---|---|---|---|---|
| WHITE SUCKER | 5.3 | 3.7 | 4.2 | 2.0 | 3.8 |
| BROWN TROUT | 7.5 | 7.2 | 3.7 | 3.0 | 5.2 |
| LAKE TROUT | 1.7 | 5.2 | 1.5 | 0.2 | 1.0 |
| ROUND WHITEFISH | 2.2 | 16.0 | 2.3 | 3.7 | 3.7 |
| YELLOW PERCH | 2.2 | 0.0 | 0.2 | 0.2 | 1.0 |
| WHITE PERCH | 6.5 | 5.2 | 1.3 | 1.7 | 1.7 |
| RAINBOW TROUT | 0.2 | 0.2 | 0.3 | 0.2 | 0.0 |
| GIZZARD SHAD | 0.2 | 0.2 | 0.3 | 0.2 | 0.2 |
| WHITE BASS | 1.5 | 0.7 | 0.7 | 0.0 | 0.2 |
| LAKE WHITEFISH | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 |
| ALEWIFE | 0.0 | 0.2 | 0.3 | 0.2 | 0.0 |
| LAKE CHUB | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 |
| COHO SALMON | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 |
| CHINOOK SALMON | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 |
| LONGNOSE SUCKER | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| CARP | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 |
| TOTAL | 27.5 | 39.0 | 14.8 | 11.3 | 16.7 |

round whitefish were taken at 7 m than at 3 m although the proportion caught at 3m increased between the first (31%) and last fishing (45%) occasions suggesting some inshore migration.

Total brown trout, white perch, yellow perch and white bass catches were higher at the Pickering NGS A and B discharges than at the remaining locations. However, these species were not consistently taken in higher numbers at the discharge locations on all three fishing occasions. Total lake trout catch was highest at the Pickering NGS B discharge with the largest single catch (29) taken at the Pickering NGS B discharge 7 m location. The temperature at this location was slightly lower than at the 7 m Simcoe Point location when the net was set and was only slightly higher than at the non-discharge locations on the day the net was pulled. Thus temperature does not appear to be the overwhelming variable affecting the spatial distribution of these species.

The average catch of round whitefish including all locations fished during this survey was 8.3 fish/net. This was higher than the average catch of 7.6 fish/net for the five locations fished during the 1986 survey. The 1986 survey did not include the Pickering NGS A discharge where lowest numbers of round whitefish were taken in 1987. Since the 1986 average catch included the peak spawning period which was probably missed in 1987, the average catch for 1987 could potentially have been even higher.

To compare the 1987 catch to those of the preoperational and interim studies only the Whitby West and Thickson Point data were used. From 1979 to 1981 the average catch of round whitefish at these two locations was less than 2.1. In 1982 and 1983 it was less than 4.0. In 1984, 1985 and 1986 they were 6.4, 8.5 and 5.8, respectively. At 9.8 fish/net the average catch of round whitefish at Whitby West and Thickson Point in 1987 was substantially higher than in previous years.

## 4.0 SUMMARY

Alewife was the most abundant species in the beach seine catch. As in most previous Pickering NGS B surveys, beach seine catch was highest at Duffin Creek. The 1987 average beach seine catch was lower than it was in 1979-1981 and 1986.

Alewife was also the most common species in the trap net catch followed by brown bullhead and white sucker. The largest number of fish were taken by trap nets set at the Pickering NGS A discharge. Average trap net catch was down from 1986 but still within the range obtained during the 1979-1981 preoperational study.

As in 1986, alewife dominated the gill net catch numerically and lake trout dominated in terms of biomass. The largest number of fish were taken in gill nets set at Duffin Creek. Lake trout were taken in significantly lower numbers at the Pickering NGS A discharge than at the remaining locations. As a result of higher catches of alewife, total catch was up from 1979-1981 and 1986. Brown trout and coho salmon were taken in higher numbers than in previous years while lake trout and round whitefish were down from 1986 but were still more abundant than they had been during the preoperational study. Increases in the abundances of lake trout and brown trout were a result of steady stocking of these salmonids since the early-seventies.

Stomach analysis indicated that lake trout consumed mainly rainbow smelt followed by alewife. Alewife was the most abundant prey species in brown trout stomachs followed by slightly smaller portions of rainbow smelt and gizzard shad. Recognizable prey species in coho salmon stomachs consisted mainly of alewife.

Round whitefish was the most common species present during the round whitefish spawning survey conducted from November 26 to December 8. The largest catch of round whitefish was taken in the Pickering NGS B 7 m net on November 26. It is suggested that the peak spawning period probably occurred following the 1987 study period since maximum numbers of round whitefish at Darlington were taken in mid-December.

Comparison of 1987 average catch at Whitby West and Thickson Point to those of previous years indicated that round whitefish were more abundant than they had been in 1979-1986.

The objective of the fish survey was to detect gross changes in the fish community of the study area. The most obvious changes in the fish community between the preoperational and postoperational studies were found in its species composition. The relative abundances of the salmonids were substantially higher during the postoperational studies than they had been during the preoperational studies.

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Approved by:

D.J. Dodd
Manager
Chemical Research Dept

Prepared by:

J.K. Kwik
Biologist
Biological Research Section

Reviewed by:

A.C. McMillan
Section Head
Biological Research Section

JKK:ra

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APPENDIX 1
PICKERING BEACH SEINES
MAY 27, 1987

| MAY 27 | PK A DISCHARGE | | | PK B DISCHARGE | | | DUFFIN CREEK | | | SIMCOE POINT | | | TOTAL | % CATCH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | | |
| ALEWIFE | 37 | 12 | 15 | | | | 1 | | | 1 | 1 | 2 | 69 | 26.6% |
| GIZZARD SHAD | | | | | | | | | | | | | 0 | 0.0% |
| RAINBOW TROUT | | 1 | 1 | | | | | | | | | | 0 | 0.0% |
| BROWN TROUT | | | | | | | | 1 | | | 1 | | 4 | 1.5% |
| RAINBOW SMELT | 11 | 13 | 4 | 19 | 23 | 19 | 26 | 9 | 10 | 3 | 15 | 5 | 157 | 60.6% |
| WHITE SUCKER | | | | | | | | | | | | | 0 | 0.0% |
| YELLOW PERCH | | | | | | | | | | | | | 0 | 0.0% |
| LAKE CHUB | | | | | | | 1 | | | | | | 1 | 0.4% |
| CARP | | | | | | | | | | | | | 0 | 0.0% |
| EMERALD SHINER | 4 | 1 | | 1 | | 1 | | | | | | | 7 | 2.7% |
| SPOTTAIL SHINER | 1 | 2 | 3 | | | | | | | | | | 6 | 2.3% |
| COHO SALMON | | 1 | | | | | | | | | | | 1 | 0.4% |
| CHINOOK SALMON | | | | | | | | | | | 1 | | 1 | 0.4% |
| BLUNTNOSE MINNOW | | | | | | | | | | | | | 0 | 0.0% |
| FATHEAD MINNOW | | | | | | | | | | | | | 0 | 0.0% |
| LONGNOSE DACE | | | | | | | 1 | | 1 | 7 | 2 | 2 | 13 | 5.0% |
| BROWN BULLHEAD | | | | | | | | | | | | | 0 | 0.0% |
| WHITE PERCH | | | | | | | | | | | | | 0 | 0.0% |
| WHITE BASS | | | | | | | | | | | | | 0 | 0.0% |
| ROCK BASS | | | | | | | | | | | | | 0 | 0.0% |
| PUMPKINSEED | | | | | | | | | | | | | 0 | 0.0% |
| SMALLMOUTH BASS | | | | | | | | | | | | | 0 | 0.0% |
| LOGPERCH | | | | | | | | | | | | | 0 | 0.0% |
| SLIMY SCULPIN | | | | | | | | | | | | | 0 | 0.0% |
| UNIDENTIFIED SHINER | | | | | | | | | | | | | 0 | 0.0% |
| MOTTLED SCULPIN | | | | | | | | | | | | | 0 | 0.0% |
| COMMON SHINER | | | | | | | | | | | | | 0 | 0.0% |
| TOTAL | 53 | 30 | 23 | 20 | 23 | 20 | 29 | 10 | 11 | 11 | 20 | 9 | 259 | 100.0% |

APPENDIX I
PICKERING BEACH SEINES
JULY 22, 1987

| | PK A DISCHARGE | | | PK B DISCHARGE | | | DUFFIN CREEK | | | SIMCOE POINT | | | TOTAL | % CATCH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| JULY 22 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | | |
| ALEWIFE | 1 | 5 | 2 | 3 | 11 | | 1 | 2 | 1 | 6 | 1 | 9 | 42 | 23.5% |
| GIZZARD SHAD | | | | | 1 | | 17 | 4 | 7 | 1 | | | 30 | 16.8% |
| RAINBOW TROUT | | | | | | | | | | | | | 0 | 0.0% |
| BROWN TROUT | | | | | | | | | | | | | 0 | 0.0% |
| RAINBOW SMELT | 1 | | | | | | 1 | | | | | | 2 | 1.1% |
| WHITE SUCKER | | | | | | | | | | | | | 0 | 0.0% |
| YELLOW PERCH | 5 | 1 | | | | | | | | 3 | 3 | 5 | 17 | 9.5% |
| LAKE CHUB | | | | | | | | | | | | | 0 | 0.0% |
| CARP | | | | | | | | | | | | | 0 | 0.0% |
| EMERALD SHINER | 1 | | 1 | | | | 12 | 2 | | | | | 16 | 8.9% |
| SPOTTAIL SHINER | | 1 | | 1 | | 2 | 17 | 9 | 13 | | | | 43 | 24.0% |
| COHO SALMON | | | | | | | | | | | | | 0 | 0.0% |
| CHINOOK SALMON | | | | | | | | | | | | | 0 | 0.0% |
| BLUNTNOSE MINNOW | | | | | | | | | | | | | 0 | 0.0% |
| FATHEAD MINNOW | | | | | | | 1 | | | | | | 1 | 0.6% |
| LONGNOSE DACE | 1 | | | | 1 | | | 3 | | 4 | | 1 | 10 | 5.6% |
| BROWN BULLHEAD | | | | | | | | | | | | | 0 | 0.0% |
| WHITE PERCH | | | | | | | | | | | | | 0 | 0.0% |
| WHITE BASS | 2 | 4 | | 3 | | 2 | | | | | | | 11 | 6.1% |
| ROCK BASS | | | | | | 1 | 1 | | 1 | | | | 3 | 1.7% |
| PUMPKINSEED | | | | | | | | | | | | | 0 | 0.0% |
| SMALLMOUTH BASS | | | | | | | | | | | | | 0 | 0.0% |
| LOGPERCH | | 1 | | | | | 1 | | | | | 1 | 3 | 1.7% |
| SLIMY SCULPIN | | | | | | | | 1 | | | | | 1 | 0.6% |
| UNIDENTIFIED SHINER | | | | | | | | | | | | | 0 | 0.0% |
| MOTTLED SCULPIN | | | | | | | | | | | | | 0 | 0.0% |
| COMMON SHINER | | | | | | | | | | | | | 0 | 0.0% |
| TOTAL | 11 | 12 | 3 | 7 | 13 | 5 | 51 | 21 | 22 | 14 | 4 | 16 | 179 | 100.0% |

APPENDIX I
PICKERING BEACH SEINES
AUGUST 19, 1987

| | PK A DISCHARGE | | | PK B DISCHARGE | | | DUFFIN CREEK | | | SIMCOE POINT | | | TOTAL | % CATCH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AUGUST 19 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | | |
| ALEWIFE | 6 | 4 | 3 | | 1 | | 29 | 10 | 11 | 6 | 35 | 45 | 150 | 17.1% |
| GIZZARD SHAD | 1 | 2 | 1 | 35 | 14 | 18 | 11 | 11 | 32 | | 7 | 11 | 143 | 16.3% |
| RAINBOW TROUT | | | | | | | | | | | | | 0 | 0.0% |
| BROWN TROUT | | | | | | | | | | | | | 0 | 0.0% |
| RAINBOW SMELT | | | | | | | 1 | | | | | | 1 | 0.1% |
| WHITE SUCKER | | | | | | | | | | | | | 0 | 0.0% |
| YELLOW PERCH | | | | | | | | | | | | | 0 | 0.0% |
| LAKE CHUB | | | | | | | | 4 | | | | | 4 | 0.5% |
| CARP | | | | | | | | | | | | | 0 | 0.0% |
| EMERALD SHINER | | 1 | 2 | | | | 3 | 4 | 1 | | | | 11 | 1.3% |
| SPOTTAIL SHINER | | 1 | | 1 | | | 1 | | | | | | 3 | 0.3% |
| COHO SALMON | | | | | | | | | | | | | 0 | 0.0% |
| CHINOOK SALMON | | | | | | | | | | | | | 0 | 0.0% |
| BLUNTNOSE MINNOW | | | | | | | | | | | | | 0 | 0.0% |
| FATHEAD MINNOW | | | | | | | | | | | | | 0 | 0.0% |
| LONGNOSE DACE | | | | | | | | 2 | 3 | 1 | 2 | 5 | 13 | 1.5% |
| BROWN BULLHEAD | 1 | | | | | | | | | | | | 1 | 0.1% |
| WHITE PERCH | | | | 1 | | 1 | | 1 | | | | | 3 | 0.3% |
| WHITE BASS | 3 | 4 | 3 | 7 | | 3 | | 1 | | | | | 21 | 2.4% |
| ROCK BASS | | | | | | | | | | | | | 0 | 0.0% |
| PUMPKINSEED | | | | | 1 | | | | | | | | 1 | 0.1% |
| SMALLMOUTH BASS | | | | | | | | | | | | | 0 | 0.0% |
| LOGPERCH | | | | | | | | | 1 | | | | 1 | 0.1% |
| SLIMY SCULPIN | | | | | | | | | | | | | 0 | 0.0% |
| UNIDENTIFIED SHINER | | | | | | | | | 1 | | | | 1 | 0.1% |
| MOTTLED SCULPIN | | | | | | | | | | | | | 0 | 0.0% |
| COMMON SHINER | | | | | | | | | | | | | 0 | 0.0% |
| TOTAL | 11 | 12 | 9 | 44 | 16 | 22 | 45 | 33 | 49 | 7 | 44 | 61 | 353 | 100.0% |

APPENDIX I
PICKERING BEACH SEINES
SEPTEMBER 21, 1987

| | PK A DISCHARGE | | | PK B DISCHARGE | | | DUFFIN CREEK | | | SIMCOE POINT | | | TOTAL | % CATCH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | | |
| SEPTEMBER 21 | | | | | | | | | | | | | | |
| ALEWIFE | | | | | 1 | | 4 | 5 | | 1 | 1 | | 12 | 26.1% |
| GIZZARD SHAD | 4 | | 1 | | 1 | | | | | | | | 6 | 13.0% |
| RAINBOW TROUT | | | | | | | | | | | | | 0 | 0.0% |
| BROWN TROUT | | | | | 1 | | | | | | | | 1 | 2.2% |
| RAINBOW SMELT | | | | | | 4 | 3 | 7 | 4 | | 1 | | 19 | 41.3% |
| WHITE SUCKER | | | | | | | | | | | | | 0 | 0.0% |
| YELLOW PERCH | | | | | | | | | | | | | 0 | 0.0% |
| LAKE CHUB | | | | | | | | | | | | | 0 | 0.0% |
| CARP | | | | | | | | | | | | | 0 | 0.0% |
| EMERALD SHINER | | 1 | | | 1 | | 1 | | | 1 | | | 4 | 8.7% |
| SPOTTAIL SHINER | | | | | | | | | | | | | 0 | 0.0% |
| COHO SALMON | | | | | | | | | | | | | 0 | 0.0% |
| CHINOOK SALMON | | | | | | | | | | | | | 0 | 0.0% |
| BLUNTNOSE MINNOW | | | | | | | | | | | | | 0 | 0.0% |
| FATHEAD MINNOW | | | | | | | | | | | | | 0 | 0.0% |
| LONGNOSE DACE | | | | | | | | | 1 | 1 | | | 2 | 4.3% |
| BROWN BULLHEAD | | | | | | | | | 1 | | | | 1 | 2.2% |
| WHITE PERCH | | | | | | | | | | | | | 0 | 0.0% |
| WHITE BASS | | | | | | | | | | | | | 0 | 0.0% |
| ROCK BASS | | | | | | | | | | | | | 0 | 0.0% |
| PUMPKINSEED | | | | | | | | | | | | | 0 | 0.0% |
| SMALLMOUTH BASS | | | | | | | | | | | | | 0 | 0.0% |
| LOGPERCH | | | | | | | | | | | | | 0 | 0.0% |
| SLIMY SCULPIN | | | | | | | | | | | | | 0 | 0.0% |
| UNIDENTIFIED SHINER | | | | | | | | | | | | | 0 | 0.0% |
| MOTTLED SCULPIN | | | | | | | | | 1 | | | | 1 | 2.2% |
| COMMON SHINER | | | | | | | | | | | | | 0 | 0.0% |
| | | | | | | | | | | | | | 0 | |
| TOTAL | 4 | 1 | 1 | 0 | 4 | 4 | 8 | 12 | 7 | 3 | 2 | 0 | 46 | 100.0% |

APPENDIX I
PICKERING BEACH SEINES
OCTOBER 19, 1987

| | PK A DISCHARGE | | | PK B DISCHARGE | | | DUFFIN CREEK | | | SIMCOE POINT | | | TOTAL | % CATCH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OCTOBER 19 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | | |
| ALEWIFE | | | | | | | | | | | | | 0 | 0.0% |
| GIZZARD SHAD | | | | | | | | | | | | | 0 | 0.0% |
| RAINBOW TROUT | | | | | | | | | | | | | 0 | 0.0% |
| BROWN TROUT | | | | | | | | | | | | | 0 | 0.0% |
| RAINBOW SMELT | | | | | | | | | | | | | 0 | 0.0% |
| WHITE SUCKER | | | | | | | | | | | | | 0 | 0.0% |
| YELLOW PERCH | 1 | | | | | | 4 | | | | | | 5 | 9.8% |
| LAKE CHUB | | | | | | | | | | | | | 0 | 0.0% |
| CARP | | | | | | | | | | | | | 0 | 0.0% |
| EMERALD SHINER | | | | 2 | | 1 | 3 | | 4 | | | | 10 | 19.6% |
| SPOTTAIL SHINER | 1 | | | | | | 8 | 2 | 4 | | | | 15 | 29.4% |
| COHO SALMON | | | | | | | | | | | | | 0 | 0.0% |
| CHINOOK SALMON | | | | | | | | | | | | | 0 | 0.0% |
| BLUNTNOSE MINNOW | | | | | | | | | | | | | 0 | 0.0% |
| FATHEAD MINNOW | | | | | | | | | | | | | 0 | 0.0% |
| LONGNOSE DACE | 1 | | 1 | | | | 1 | | 1 | | 2 | | 6 | 11.8% |
| BROWN BULLHEAD | | | | | | | | | | | | | 0 | 0.0% |
| WHITE PERCH | | | | | | | | | | | | | 0 | 0.0% |
| WHITE BASS | | 1 | | | | | | | | | | | 1 | 2.0% |
| ROCK BASS | | | | | | | | | | | | | 0 | 0.0% |
| PUMPKINSEED | | 1 | | 1 | | 2 | | 2 | 2 | 1 | | | 9 | 17.6% |
| SMALLMOUTH BASS | | | | | | | | | 1 | | | | 1 | 2.0% |
| LOGPERCH | | | | | | | | | | | | | 0 | 0.0% |
| SLIMY SCULPIN | | | | | | | | | | | 1 | 1 | 2 | 3.9% |
| UNIDENTIFIED SHINER | | | | | | | | | | | | | 0 | 0.0% |
| MOTTLED SCULPIN | | | | | | | | | | | | | 0 | 0.0% |
| COMMON SHINER | | | | | | | 2 | | | | | | 2 | 3.9% |
| TOTAL | 3 | 2 | 1 | 3 | 0 | 3 | 18 | 4 | 12 | 1 | 3 | 1 | 51 | 100.0% |

APPENDIX II
PICKERING TRAP NETS 1987
MAY 21-22

| | PK A DIS | | | | PK B DIS | | | | DUFFIN CR | | | | SIMCOE PT | | | | TOTAL E | TOTAL W | TOTAL# | % CATCH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | EAST | | WEST | | EAST | | WEST | | EAST | | WEST | | EAST | | WEST | | | | | |
| MAY 1987 | 21 | 22 | 21 | 22 | 21 | 22 | 21 | 22 | 21 | 22 | 21 | 22 | 21 | 22 | 21 | 22 | | | | |
| BOWFIN | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| ALEWIFE | 2 | 10 | | 8 | 59 | 2 | 2 | | 211 | 262 | 32 | 12 | | 3 | | 1 | 349 | 55 | 604 | 92.50% |
| GIZZARD SHAD | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| BROWN TROUT | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| LAKE TROUT | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| ROUND WHITEFISH | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| RAINBOW SMELT | | | | | | | 4 | | 1 | | | | | | | | 1 | 4 | 5 | 0.77% |
| LONGNOSE SUCKER | | | | | | | | | | 5 | | | | | | | 5 | 0 | 5 | 0.77% |
| WHITE SUCKER | | | 2 | 1 | 1 | 1 | 1 | | | 11 | 6 | 5 | | | 2 | | 13 | 17 | 30 | 4.59% |
| CARP | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| BROWN BULLHEAD | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| CHANNEL CATFISH | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| AMERICAN EEL | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| WHITE PERCH | | | 1 | | | | | | 1 | | | | | | | | 1 | 1 | 2 | 0.31% |
| WHITE BASS | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| ROCK BASS | | | | | | | | | | | 2 | | | | | | 0 | 2 | 2 | 0.31% |
| PUMPKINSEED | | | | | | | | | | | 1 | | | | | | 0 | 1 | 1 | 0.15% |
| SMALL MOUTH BASS | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| BLACK CRAPPIE | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| YELLOW PERCH | 1 | 1 | 2 | | | | | | | | | | | | | | 2 | 2 | 4 | 0.61% |
| WALLEYE | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| | | | | | | | | | | | | | | | | | 0 | | 0 | |
| TOTAL | 3 | 11 | 5 | 9 | 60 | 3 | 7 | 0 | 213 | 278 | 41 | 17 | 0 | 3 | 2 | 1 | 571 | 82 | 653 | 100.00% |

APPENDIX II
PICKERING TRAP NETS
JUNE 23 & 24, 1987

| | PK A DIS | | | | PK B DIS | | | | DUFFIN CR | | | | SIMCOE PT | | | | TOTAL E | TOTAL W | TOTAL# | % CATCH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | EAST | | WEST | | EAST | | WEST | | EAST | | WEST | | EAST | | WEST | | | | | |
| JUNE 1987 | 23 | 24 | 23 | 24 | 23 | 24 | 23 | 24 | 23 | 24 | 23 | 24 | 23 | 24 | 23 | 24 | | | | |
| BOWFIN | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| ALEWIFE | 200 | 37 | 5 | 37 | 44 | 5 | 125 | 37 | 39 | 47 | 73 | 24 | 63 | 91 | 74 | 97 | 526 | 472 | 998 | 93.45% |
| GIZZARD SHAD | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| BROWN TROUT | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| LAKE TROUT | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| ROUND WHITEFISH | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| RAINBOW SMELT | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| WHITE SUCKER | | | | 1 | 1 | | | | | 4 | | 3 | 1 | 1 | | | 7 | 4 | 11 | 1.03% |
| CARP | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| BROWN BULLHEAD | 2 | 24 | 1 | 16 | | | | | 1 | | 3 | 6 | | 3 | | | 30 | 26 | 56 | 5.24% |
| CHANNEL CATFISH | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| AMERICAN EEL | | 1 | | | | | | | | | | | | | | | 1 | 0 | 1 | 0.09% |
| WHITE PERCH | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| WHITE BASS | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| ROCK BASS | | | | 1 | | | | | | | | | | | | | 0 | 1 | 1 | 0.09% |
| PUMPKINSEED | 1 | | | | | | | | | | | | | | | | 1 | 0 | 1 | 0.09% |
| SMALL MOUTH BASS | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| BLACK CRAPPIE | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| YELLOW PERCH | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| WALLEYE | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| TOTAL | 203 | 62 | 6 | 55 | 45 | 5 | 125 | 37 | 40 | 51 | 76 | 33 | 64 | 95 | 74 | 97 | 565 | 503 | 1068 | 100.00% |

APPENDIX II
PICKERING TRAP NETS
JULY 23 & 24, 1987

| | PK A DIS | | | | PK B DIS | | | | DUFFIN CR | | | | SIMCOE PT | | | | TOTAL E | TOTAL W | TOTAL# | % CATCH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | EAST | | WEST | | EAST | | WEST | | EAST | | WEST | | EAST | | WEST | | | | | |
| JULY 1987 | 23 | 24 | 23 | 24 | 23 | 24 | 23 | 24 | 23 | 24 | 23 | 24 | 23 | 24 | 23 | 24 | | | | |
| BOWFIN | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| ALEWIFE | 198 | 1180 | 554 | 77 | 196 | 46 | 16 | 26 | 26 | 661 | 4 | 62 | 9 | 77 | 20 | 18 | 2393 | 777 | 3170 | 90.03% |
| GIZZARD SHAD | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| BROWN TROUT | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| LAKE TROUT | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| ROUND WHITEFISH | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| RAINBOW SMELT | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| WHITE SUCKER | | | | 2 | 3 | 3 | | | 7 | 14 | | 1 | | | 2 | 2 | 27 | 7 | 34 | 0.97% |
| CARP | | | 5 | 2 | | 1 | | | | | | | 1 | | | | 2 | 7 | 9 | 0.26% |
| BROWN BULLHEAD | 27 | 2 | 62 | 42 | 7 | 3 | | | 31 | 76 | | | | 2 | 10 | 3 | 148 | 117 | 265 | 7.53% |
| CHANNEL CATFISH | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| AMERICAN EEL | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| WHITE PERCH | | 1 | | 9 | | | | | | | | | | | | | 1 | 9 | 10 | 0.28% |
| WHITE BASS | 5 | | | 1 | | | | | | | | | | | | | 5 | 1 | 6 | 0.17% |
| ROCK BASS | | | | | 2 | | | 1 | 1 | | | | | | | | 3 | 1 | 4 | 0.11% |
| PUMPKINSEED | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| SMALL MOUTH BASS | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| BLACK CRAPPIE | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| YELLOW PERCH | | | | | | | | | 9 | 3 | 3 | 8 | | | | | 12 | 11 | 23 | 0.65% |
| WALLEYE | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| TOTAL | 230 | 1183 | 621 | 133 | 208 | 53 | 16 | 27 | 74 | 754 | 7 | 71 | 10 | 79 | 32 | 23 | 2591 | 930 | 3521 | 100.00% |

APPENDIX II
PICKERING TRAP NETS
AUGUST 19 & 20, 1987

| | PK A DIS | | | | PK B DIS | | | | DUFFIN CR | | | | SIMCOE PT | | | | TOTAL E | TOTAL W | TOTAL# | % CATCH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | EAST | | WEST | | EAST | | WEST | | EAST | | WEST | | EAST | | WEST | | | | | |
| AUGUST | 19 | 20 | 19 | 20 | 19 | 20 | 19 | 20 | 19 | 20 | 19 | 20 | 19 | 20 | 19 | 20 | | | | |
| BOWFIN | | | 1 | | | | | | | | | | | | | | 0 | 1 | 1 | 0.28% |
| ALEWIFE | | | | | | | | | 1 | 1 | | 2 | 1 | 27 | | 3 | 30 | 5 | 35 | 9.92% |
| GIZZARD SHAD | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| BROWN TROUT | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| LAKE TROUT | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| ROUND WHITEFISH | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| RAINBOW SMELT | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| NORTHERN PIKE | | 2 | | 1 | | | | | | | | | | | | | 2 | 1 | 3 | 0.85% |
| WHITE SUCKER | | 3 | | | | 1 | | 1 | | 1 | | 2 | | 1 | 2 | 1 | 6 | 6 | 12 | 3.40% |
| CARP | 2 | 2 | 2 | | | | 3 | 1 | | | 2 | | | | | | 4 | 8 | 12 | 3.40% |
| BROWN BULLHEAD | 26 | 16 | | | | | 47 | 4 | | | 12 | | | | 27 | | 42 | 90 | 132 | 37.39% |
| CHANNEL CATFISH | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| AMERICAN EEL | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| WHITE PERCH | 14 | 31 | 5 | | 1 | | 3 | | | | | | 1 | | | | 47 | 8 | 55 | 15.58% |
| WHITE BASS | 10 | 11 | | | | | | | | | | | | | | | 21 | 0 | 21 | 5.95% |
| ROCK BASS | 2 | 1 | | | | | | | | 1 | | 2 | | | | | 4 | 2 | 6 | 1.70% |
| PUMPKINSEED | 29 | 9 | | | | | 1 | | | | | | | | | | 38 | 1 | 39 | 11.05% |
| SMALL MOUTH BASS | | 9 | | | | | | | | | | | | | | | 9 | 0 | 9 | 2.55% |
| BLACK CRAPPIE | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| YELLOW PERCH | 2 | | | 6 | | | | 1 | 3 | | 1 | 9 | 3 | 1 | 2 | | 9 | 19 | 28 | 7.93% |
| WALLEYE | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| TOTAL | 85 | 84 | 8 | 7 | 1 | 1 | 54 | 7 | 4 | 3 | 15 | 15 | 5 | 29 | 31 | 4 | 212 | 141 | 353 | 100.00% |

APPENDIX II
PICKERING TRAP NETS
SEPTEMBER 22 & 23, 1987

| | PK A DIS | | | | PK B DIS | | | | DUFFIN CR | | | | SIMCOE PT | | | | TOTAL E | TOTAL W | TOTAL# | % CATCH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | EAST | | WEST | | EAST | | WEST | | EAST | | WEST | | EAST | | WEST | | | | | |
| SEPT 1987 | 22 | 23 | 22 | 23 | *22 | 23 | *22 | 23 | *22 | 23 | *22 | 23 | *22 | 23 | *22 | 23 | | | | |
| BOWFIN | | | | | | | | | | | | | | | | | | | | |
| ALEWIFE | | | | | 2 | | | | 3 | | | | 3 | | | | 0 | 0 | 0 | 0.00% |
| GIZZARD SHAD | | | | | | | | | | | | | | | | | 8 | 0 | 8 | 4.94% |
| BROWN TROUT | | | | | 1 | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| LAKE TROUT | | | | | | | | | | | 7 | | | | | | 1 | 7 | 8 | 4.94% |
| ROUND WHITEFISH | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| RAINBOW SMELT | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| NORTHERN PIKE | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| WHITE SUCKER | | | | | 2 | | 2 | | | | 3 | | | | 3 | | 2 | 8 | 10 | 6.17% |
| CARP | 1 | | 7 | 1 | | | | | | | | | | | | | 1 | 8 | 9 | 5.56% |
| BROWN BULLHEAD | 27 | 10 | 15 | | | | | | | | 4 | | 1 | | 2 | | 38 | 21 | 59 | 36.42% |
| CHANNEL CATFISH | | | 1 | | | | | | | | | | | | | | 0 | 1 | 1 | 0.62% |
| AMERICAN EEL | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| WHITE PERCH | | | 3 | 1 | 1 | | | | 2 | | 2 | | 2 | | 1 | | 5 | 7 | 12 | 7.41% |
| WHITE BASS | | 7 | 23 | | 2 | | | | 1 | | | | 1 | | | | 11 | 23 | 34 | 20.99% |
| ROCK BASS | | | 1 | | | | 1 | | | | | | | | | | 0 | 2 | 2 | 1.23% |
| PUMPKINSEED | 3 | 3 | 3 | 1 | | | | | | | | | | | | | 6 | 4 | 10 | 6.17% |
| SMALL MOUTH BASS | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| BLACK CRAPPIE | | 1 | | | | | | | | | | | | | | | 1 | 0 | 1 | 0.62% |
| YELLOW PERCH | | | | | | | | | 3 | | | | 2 | | 2 | | 5 | 2 | 7 | 4.32% |
| WALLEYE | | | | | 1 | | | | | | | | | | | | 1 | 0 | 1 | 0.62% |
| TOTAL | 31 | 21 | 53 | 3 | 9 | 0 | 3 | 0 | 9 | 0 | 16 | 0 | 9 | 0 | 8 | 0 | 79 | 83 | 162 | 100.00% |

*48 hour set.

APPENDIX II
PICKERING TRAP NETS
OCTOBER 14 & 15, 1987

| | PK A DIS | | | | | | | | PK B DIS | | | | | | | | DUFFIN CR | | | | | | | | SIMCOE PT | | | | TOTAL E | TOTAL W | TOTAL# | % CATCH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | EAST | | | | WEST | | | | EAST | | | | WEST | | | | EAST | | | | WEST | | | | EAST | | | | | | | |
| OCT 1987 | 14 | | *15 | | 14 | | 15 | | 14 | | 15 | | 14 | | 15 | | 14 | | 15 | | 14 | | 15 | | 14 | | 15 | | | | | |
| BOWFIN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| ALEWIFE | | | | | | | | | | | | | | | | | 107 | | 7 | | 157 | | 3 | | | | | | 114 | 160 | 274 | 78.29% |
| GIZZARD SHAD | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| BROWN TROUT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| LAKE TROUT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| ROUND WHITEFISH | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| RAINBOW SMELT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| NORTHERN PIKE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| WHITE SUCKER | | | | | 2 | | 2 | | | | 3 | | 21 | | 4 | | 2 | | | | | | 4 | | | | | | 0 | 0 | 0 | 0.00% |
| CARP | | | | | 1 | | 1 | | | | | | | | | | | | | | | | | | | | | | 5 | 33 | 38 | 10.86% |
| BROWN BULLHEAD | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | 2 | 2 | 0.57% |
| CHANNEL CATFISH | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| AMERICAN EEL | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| WHITE PERCH | 4 | | | | | | 1 | | | | | | 1 | | 1 | | | | | | 1 | | | | | | 2 | | 0 | 0 | 0 | 0.00% |
| WHITE BASS | | | | | 2 | | 7 | | | | 2 | | | | 1 | | | | | | 1 | | | | | | | | 6 | 4 | 10 | 2.86% |
| ROCK BASS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | 11 | 13 | 3.71% |
| PUMPKINSEED | | | | | | | | | | | 1 | | | | 1 | | | | | | | | | | | | 1 | | 1 | 0 | 1 | 0.29% |
| SMALL MOUTH BASS | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | 1 | | 2 | 2 | 4 | 1.14% |
| BLACK CRAPPIE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| YELLOW PERCH | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| WALLEYE | | | | | | | | | | | | | | | | | 1 | | 1 | | 4 | | 1 | | | | | | 3 | 5 | 8 | 2.29% |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| TOTAL | 5 | | 0 | | 5 | | 11 | | 0 | | 6 | | 22 | | 7 | | 110 | | 8 | | 163 | | 9 | | 0 | | 4 | | 0 | | 0 | | 133 | 217 | 350 | 100.00% |

*Net not recovered

APPENDIX III
PICKERING GILL NETS
MAY 13 & 14, 1987

| | PK A DISCHARGE | | | | PK B DISCHARGE | | | | DUFFINS CREEK | | | | SIMCOE POINT | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3M | | 12M | | 3M | | 12M | | 3M | | 12M | | 3M | | 12M | | TOTAL | TOTAL | TOTAL | % OF |
| MAY | 13 | 14 | 13 | 14 | 13 | 14 | 13 | 14 | 13 | 14 | 13 | 14 | 13 | 14 | 13 | 14 | 3M | 12M | CATCH | CATCH |
| LAMPREY | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| LONGNOSE GAR | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| ALEWIFE | 163 | 212 | 241 | 187 | 152 | 202 | 37 | 109 | 7 | 147 | 8 | 147 | 11 | 197 | 18 | 172 | 1091 | 919 | 2010 | 86.45% |
| GIZZARD SHAD | | | | | | | | | 1 | | | | | | | | 1 | 0 | 1 | 0.04% |
| PINK SALMON | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| COHO SALMON | | | | | 1 | | | | | | | | | | | | 1 | 0 | 1 | 0.04% |
| CHINOOK SALMON | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| RAINBOW TROUT | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| BROWN TROUT | 9 | 16 | | 1 | 29 | 12 | 1 | | 3 | 2 | | | 2 | | | 1 | 73 | 3 | 76 | 3.27% |
| LAKE TROUT | | 2 | | 2 | 1 | 4 | 2 | 3 | 21 | 7 | | 4 | 11 | 9 | 2 | 2 | 55 | 15 | 70 | 3.01% |
| LAKE WHITEFISH | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| ROUND WHITEFISH | | 1 | 10 | 18 | 3 | 4 | 1 | | 3 | 2 | 1 | | 1 | 1 | | 1 | 15 | 31 | 46 | 1.98% |
| RAINBOW SMELT | | | | | 5 | | | 2 | 1 | | | | | 1 | | | 7 | 2 | 9 | 0.39% |
| NORTHERN PIKE | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| LONG NOSE SUCKER | | | | | | | | | | | | | | 2 | | | 2 | 0 | 2 | 0.09% |
| WHITE SUCKER | | 19 | | 5 | 7 | 11 | 2 | 3 | 14 | 23 | 1 | | 11 | 4 | | | 89 | 11 | 100 | 4.30% |
| RED HORSE SUCKER | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| LAKE CHUB | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| CARP | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| BROWN BULLHEAD | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| CHANNEL CATFISH | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| WHITE PERCH | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| WHITE BASS | 1 | | | | | 1 | | | | | 1 | | 3 | | | | 5 | 1 | 6 | 0.26% |
| ROCK BASS | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| PUMPKINSEED | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| SMALL MOUTH BASS | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| YELLOW PERCH | | | | | | | | | | 1 | | | | | 2 | 1 | 1 | 3 | 4 | 0.17% |
| WALLEYE | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| LOGPERCH | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| FRESH WATER DRUM | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0 | 0.00% |
| TOTAL | 173 | 250 | 251 | 213 | 198 | 234 | 43 | 117 | 50 | 182 | 11 | 151 | 39 | 214 | 22 | 177 | 1340 | 985 | 2325 | 100.00% |

APPENDIX III
PICKERING GILL NETS
JUNE 16 & 17,1987

| | PK A DISCHARGE | | | | PK B DISCHARGE | | | | DUFFINS CREEK | | | | SINCOE POINT | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3M | | 12M | | 3M | | 12M | | 3M | | 12M | | 3M | | 12M | | | | | |
| JUNE | 16 | 17 | 16 | 17 | 16 | 17 | 16 | 17 | 16 | 17 | 16 | 17 | 16 | 17 | 16 | 17 | TOTAL 3M | TOTAL 12M | TOTAL CATCH | % OF CATCH |
| LAMPREY | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| LONGNOSE GAR | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| ALEWIFE | 75 | | 157 | 556 | 322 | 421 | 180 | 105 | 559 | 503 | 128 | 887 | 409 | 87 | 89 | 190 | 2376 | 2292 | 4668 | 97.15% |
| GIZZARD SHAD | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| PINK SALMON | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| COHO SALMON | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| CHINOOK SALMON | | | 2 | | | | | | | | | | | | | | 0 | 2 | 2 | 0.04% |
| RAINBOW TROUT | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| BROWN TROUT | | 6 | | | 5 | 4 | 1 | | 4 | 1 | | | | 1 | | 1 | 21 | 2 | 23 | 0.48% |
| LAKE TROUT | 1 | 1 | 1 | | | 1 | 2 | 2 | 3 | 1 | | 1 | 2 | | 1 | 1 | 9 | 8 | 17 | 0.35% |
| LAKE WHITEFISH | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| ROUND WHITEFISH | | 1 | 9 | 5 | | | | | | | 2 | 1 | | | | | 1 | 17 | 18 | 0.37% |
| RAINBOW SMELT | | | 4 | 3 | | | 1 | | | | 1 | 1 | 4 | | | 3 | 4 | 13 | 17 | 0.35% |
| NORTHERN PIKE | | | | | | | | | | | | | 1 | | | | 1 | 0 | 1 | 0.02% |
| LONG NOSE SUCKER | | | | | | | | | | | | | 1 | | | | 1 | 0 | 1 | 0.02% |
| WHITE SUCKER | 4 | 18 | 3 | 4 | 1 | | 1 | | 6 | 1 | 2 | | 8 | 1 | 2 | 3 | 39 | 15 | 54 | 1.12% |
| RED HORSE SUCKER | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| LAKE CHUB | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| CARP | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| BROWN BULLHEAD | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| CHANNEL CATFISH | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| WHITE PERCH | 1 | | | | | | | | | | | | | | | | 1 | 0 | 1 | 0.02% |
| WHITE BASS | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| ROCK BASS | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| PUMPKINSEED | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| SMALL MOUTH BASS | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| YELLOW PERCH | | | | | | 1 | | | | | | | | | | | 1 | 0 | 1 | 0.02% |
| WALLEYE | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| LOGPERCH | | | | 1 | | | | | 1 | | | | | | | | 1 | 1 | 2 | 0.04% |
| FRESH WATER DRUM | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| TOTAL | 81 | 26 | 176 | 569 | 328 | 427 | 185 | 107 | 573 | 506 | 133 | 890 | 425 | 89 | 92 | 198 | 2455 | 2350 | 4805 | 100.00% |

APPENDIX III
PICKERING GILL NETS
JULY 14 & 15,1987

| | PK A DISCHARGE | | | | PK B DISCHARGE | | | | DUFFINS CREEK | | | | SIMCOE POINT | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3M | | 12M | | 3M | | 12M | | 3M | | 12M | | 3M | | 12M | | TOTAL | TOTAL | TOTAL | % OF |
| JULY | 14 | 15 | 14 | 15 | 14 | 15 | 14 | 15 | 14 | 15 | 14 | 15 | 14 | 15 | 14 | 15 | 3M | 12M | CATCH | CATCH |
| LAMPREY | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| LONGNOSE GAR | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| ALEWIFE | 234 | 1 | 215 | 658 | 1668 | 53 | 465 | 972 | 2014 | 59 | 1196 | 1181 | 766 | 1005 | 823 | 1045 | 5800 | 6555 | 12355 | 98.08% |
| GIZZARD SHAD | | | 1 | | 6 | 1 | | | | | | | | 4 | | | 11 | 1 | 12 | 0.10% |
| PINK SALMON | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| COHO SALMON | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| CHINOOK SALMON | | | 4 | 1 | | | | | | 2 | 1 | | | | 1 | | 2 | 7 | 9 | 0.07% |
| RAINBOW TROUT | | | 1 | | | | | | | | | | | | | | 0 | 1 | 1 | 0.01% |
| BROWN TROUT | 6 | | 8 | | | 1 | 2 | | 3 | 1 | 1 | | 1 | 1 | | | 13 | 11 | 24 | 0.19% |
| LAKE TROUT | | | 1 | 1 | | 2 | | | | 2 | 2 | 7 | | 2 | 2 | 5 | 6 | 18 | 24 | 0.19% |
| LAKE WHITEFISH | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| ROUND WHITEFISH | | | 5 | 12 | | | 1 | 1 | 1 | 1 | 6 | 2 | | 1 | 2 | 2 | 3 | 31 | 34 | 0.27% |
| RAINBOW SMELT | | | 10 | 8 | | | 1 | | | | 1 | | | | | | 0 | 20 | 20 | 0.16% |
| NORTHERN PIKE | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| LONG NOSE SUCKER | 4 | | 4 | | | | | | | | 1 | | | | 1 | | 4 | 6 | 10 | 0.08% |
| WHITE SUCKER | 6 | 1 | 8 | 5 | 6 | 4 | 1 | 2 | 29 | 5 | 1 | 1 | 9 | 7 | 2 | 2 | 67 | 22 | 89 | 0.71% |
| RED HORSE SUCKER | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| LAKE CHUB | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| CARP | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| BROWN BULLHEAD | | | | | 1 | | | | 5 | 1 | | | | | | | 7 | 0 | 7 | 0.06% |
| CHANNEL CATFISH | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| WHITE PERCH | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| WHITE BASS | | | | | 1 | | | | | 3 | | | | | | | 4 | 0 | 4 | 0.03% |
| ROCK BASS | | | | | | | | | 1 | | | | | | | | 1 | 0 | 1 | 0.01% |
| PUMPKINSEED | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| SMALL MOUTH BASS | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| YELLOW PERCH | 1 | | | | | | | | | 5 | | | 1 | | | | 7 | 0 | 7 | 0.06% |
| WALLEYE | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| LOGPERCH | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| FRESH WATER DRUM | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| TOTAL | 251 | 2 | 257 | 685 | 1682 | 61 | 470 | 975 | 2053 | 79 | 1209 | 1191 | 777 | 1020 | 831 | 1054 | 5925 | 6672 | 12597 | 100.00% |

APPENDIX III
PICKERING GILL NETS
AUGUST 11 & 12, 1987

| | PK A DISCHARGE | | | | PK B DISCHARGE | | | | DUFFINS CREEK | | | | SIMCOE POINT | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3M | | 12M | | 3M | | 12M | | 3M | | 12M | | 3M | | 12M | | TOTAL | TOTAL | TOTAL | % OF |
| AUGUST | 11 | 12 | 11 | 12 | 11 | 12 | 11 | 12 | 11 | 12 | 11 | 12 | 11 | 12 | 11 | 12 | 3M | 12M | CATCH | CATCH |
| LAMPREY | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| LONGNOSE GAR | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| ALEWIFE | 54 | | 159 | 191 | 174 | 6 | 448 | 181 | 124 | 99 | 322 | 173 | 1 | 46 | 12 | 234 | 504 | 1720 | 2224 | 79.20% |
| GIZZARD SHAD | 6 | 5 | 13 | 7 | 6 | 3 | | | 2 | 5 | 4 | | 5 | 4 | | 2 | 36 | 26 | 62 | 2.21% |
| PINK SALMON | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| COHO SALMON | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| CHINOOK SALMON | | | | 1 | | | | | | | | | | | | | 0 | 1 | 1 | 0.04% |
| RAINBOW TROUT | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| BROWN TROUT | 3 | | 7 | 3 | 4 | 1 | | 1 | 8 | 2 | 4 | | | 2 | | 3 | 20 | 18 | 38 | 1.35% |
| LAKE TROUT | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| LAKE WHITEFISH | | | 1 | | | | 1 | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| ROUND WHITEFISH | | | | 3 | | | | | | | | | | | | | 0 | 2 | 2 | 0.07% |
| RAINBOW SMELT | 1 | | | | | | | | | | | | | | | | 0 | 3 | 3 | 0.11% |
| NORTHERN PIKE | | | | | | 1 | | 1 | | | | | | | | | 1 | 0 | 1 | 0.04% |
| LONG NOSE SUCKER | 2 | | 21 | 3 | 4 | | 27 | 12 | 4 | 7 | 23 | 18 | 3 | 1 | 29 | 6 | 1 | 1 | 2 | 0.07% |
| WHITE SUCKER | | | | | | | | | | | | | | | | | 21 | 139 | 160 | 5.70% |
| RED HORSE SUCKER | | | | 1 | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| LAKE CHUB | 3 | 4 | 1 | | 4 | 2 | | | 1 | | 1 | | | | | 1 | 0 | 2 | 2 | 0.07% |
| CARP | 14 | 6 | | 1 | 4 | 2 | | | 12 | 17 | | 3 | 1 | 8 | 3 | 1 | 14 | 2 | 16 | 0.57% |
| BROWN BULLHEAD | | | | | | | | | | | | | | | | | 64 | 8 | 72 | 2.56% |
| CHANNEL CATFISH | 19 | | 3 | 1 | 14 | 16 | 2 | | 2 | 4 | 1 | | | 3 | | | 0 | 0 | 0 | 0.00% |
| WHITE PERCH | | | | | 1 | 3 | 1 | | | | | | | | | | 58 | 7 | 65 | 2.31% |
| WHITE BASS | | | | | | | 1 | 4 | 2 | | 4 | | | 1 | 2 | 2 | 4 | 1 | 5 | 0.18% |
| ROCK BASS | | | | | | | | | | | | | | | | | 3 | 13 | 16 | 0.57% |
| PUMPKINSEED | | | | | | | | | | | | | | 1 | | | 1 | 0 | 1 | 0.04% |
| SMALL MOUTH BASS | | 1 | | | | | | | 2 | | | | 2 | | | | 5 | 0 | 5 | 0.18% |
| YELLOW PERCH | 32 | 7 | 7 | 6 | 11 | 2 | | | 13 | 16 | 10 | 10 | | 5 | 9 | 1 | 86 | 43 | 129 | 4.59% |
| WALLEYE | | | | | 1 | | | | | | | | | | | | 1 | 0 | 1 | 0.04% |
| LOGPERCH | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| FRESH WATER DRUM | | | | | | | 1 | | | 2 | | | | | | | 2 | 1 | 3 | 0.11% |
| TOTAL | 134 | 23 | 212 | 217 | 223 | 36 | 481 | 199 | 170 | 152 | 369 | 204 | 12 | 71 | 55 | 250 | 821 | 1987 | 2808 | 100.00% |

APPENDIX III
PICKERING GILL NETS
SEPTEMBER 15 & 16,1987

| | PK A DISCHARGE | | | | PK B DISCHARGE | | | | DUFFINS CREEK | | | | SINCOE POINT | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3M | | 12M | | 3M | | 12M | | 3M | | 12M | | 3M | | 12M | | TOTAL | TOTAL | TOTAL | % OF |
| SEPTEMBER | 15 | 16 NA | 15 | 16 | 15 | 16 | 15 | 16 | 15 | 16 | 15 | 16 | 15 | 16 | 15 | 16 | 3M | 12M | CATCH | CATCH |
| LAMPREY | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| LONGNOSE GAR | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| ALEWIFE | 2 | | 56 | 23 | | | | 18 | 39 | 8 | 18 | 41 | 6 | 13 | 4 | 30 | 68 | 190 | 258 | 30.42% |
| GIZZARD SHAD | | | 38 | 4 | | | | | 6 | 15 | | | 2 | 2 | | | 25 | 42 | 67 | 7.90% |
| PINK SALMON | | | | | 1 | | | | | | | | | | | | 1 | 0 | 1 | 0.12% |
| COHO SALMON | | | 9 | 3 | | | 3 | 4 | 9 | 7 | 9 | 7 | 2 | 3 | 5 | 3 | 21 | 43 | 64 | 7.55% |
| CHINOOK SALMON | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| RAINBOW TROUT | | | | | 1 | | | | | | | | | | | 1 | 1 | 1 | 2 | 0.24% |
| BROWN TROUT | 1 | | 6 | 3 | 2 | 1 | | | 2 | 3 | 1 | 1 | 2 | 3 | 1 | | 14 | 12 | 26 | 3.07% |
| LAKE TROUT | | | | | | | | 1 | | | | | | | 1 | 2 | 0 | 4 | 4 | 0.47% |
| LAKE WHITEFISH | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| ROUND WHITEFISH | 1 | | | 1 | | 1 | | | | | 2 | 1 | | | | | 2 | 4 | 6 | 0.71% |
| RAINBOW SMELT | | | 2 | 11 | | | | 8 | | | | 1 | | | | 2 | 0 | 24 | 24 | 2.83% |
| NORTHERN PIKE | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| LONG NOSE SUCKER | | | | | | | | | | | | | | 1 | | 1 | 1 | 1 | 2 | 0.24% |
| WHITE SUCKER | | | 1 | 5 | 6 | 5 | 1 | 5 | 9 | 1 | 16 | 4 | 12 | 22 | 6 | | 55 | 38 | 93 | 10.97% |
| RED HORSE SUCKER | | | | 1 | | | | | | | | | | | | | 0 | 1 | 1 | 0.12% |
| LAKE CHUB | | | | 1 | | | | | | | | | | | | | 0 | 1 | 1 | 0.12% |
| CARP | | | | 2 | 2 | | | | | 2 | 1 | | | | | | 4 | 3 | 7 | 0.83% |
| BROWN BULLHEAD | 10 | | 1 | 1 | | 3 | | | 30 | 2 | 1 | | 2 | 4 | 1 | 1 | 51 | 5 | 56 | 6.60% |
| CHANNEL CATFISH | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| WHITE PERCH | 4 | | | 1 | 27 | 33 | | 1 | 1 | | | | 3 | 2 | | | 70 | 2 | 72 | 8.49% |
| WHITE BASS | | | 2 | 2 | 4 | 4 | | | 3 | 2 | 4 | | 2 | | | | 15 | 8 | 23 | 2.71% |
| ROCK BASS | | | 1 | | | | | 1 | | | | | 2 | 1 | | | 3 | 2 | 5 | 0.59% |
| PUMPKINSEED | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| SMALL MOUTH BASS | 1 | | | | 1 | 2 | | 1 | | | | | | 1 | 1 | | 5 | 2 | 7 | 0.83% |
| YELLOW PERCH | 18 | | 46 | 14 | | | | | 12 | 18 | 1 | | 5 | 4 | | | 57 | 61 | 118 | 13.92% |
| WALLEYE | | | | | 2 | 1 | | | | | | | 1 | | | | 4 | 0 | 4 | 0.47% |
| LOGPERCH | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| FRESH WATER DRUM | | | | | 1 | | | | 1 | | 1 | 1 | 1 | | 1 | 1 | 3 | 4 | 7 | 0.83% |
| TOTAL | 37 | 0 | 162 | 72 | 47 | 50 | 4 | 39 | 112 | 58 | 54 | 56 | 40 | 56 | 20 | 41 | 400 | 448 | 848 | 100.00% |

APPENDIX III
PICKERING GILL NETS
NOV 10 & 11, 1987

| | PK A DISCHARGE | | | | PK B DISCHARGE | | | | DUFFINS CREEK | | | | SIMCOE POINT | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3M | | 12M | | 3M | | 12M | | 3M | | 12M | | 3M | | 12M | | | | | |
| NOVEMBER | 10 | 11 | 10 | 11 | 10 | 11 | 10 | 11 | 10 | 8 | 10 | 11 | 10 | 11 | 10 | 11 | TOTAL 3M | TOTAL 12M | TOTAL CATCH | % OF CATCH |
| LAMPREY | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| LONGNOSE GAR | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| ALEWIFE | 1 | | | 1 | | | | | | | | | | | | | 1 | 1 | 2 | 0.56% |
| GIZZARD SHAD | | 1 | | | 2 | 3 | | | 3 | 4 | | | | 1 | | | 14 | 0 | 14 | 3.90% |
| PINK SALMON | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| COHO SALMON | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| CHINOOK SALMON | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| RAINBOW TROUT | | | | | | 1 | | | | 5 | | | | | | | 6 | 0 | 6 | 1.67% |
| BROWN TROUT | 13 | 13 | 3 | 4 | 8 | 4 | 1 | | 10 | 8 | | | 4 | 2 | | | 62 | 8 | 70 | 19.50% |
| LAKE TROUT | 2 | 4 | 3 | 1 | 12 | 9 | 14 | 11 | 9 | 1 | 16 | 6 | 5 | 3 | 16 | 7 | 45 | 74 | 119 | 33.15% |
| LAKE WHITEFISH | | 1 | | 1 | | | | | | | | | | | | | 1 | 1 | 2 | 0.56% |
| ROUND WHITEFISH | 2 | 3 | 1 | 3 | 3 | 1 | 1 | 4 | 1 | | | 2 | 1 | | 1 | | 11 | 12 | 23 | 6.41% |
| RAINBOW SMELT | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| NORTHERN PIKE | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| LONG NOSE SUCKER | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| WHITE SUCKER | 4 | 3 | 3 | 2 | 12 | 2 | | 2 | 15 | 16 | 1 | 1 | 11 | 8 | 1 | | 71 | 10 | 81 | 22.56% |
| RED HORSE SUCKER | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| LAKE CHUB | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| CARP | | | | | | | | | | 1 | | | | | | | 1 | 0 | 1 | 0.28% |
| BROWN BULLHEAD | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| CHANNEL CATFISH | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| WHITE PERCH | 2 | 4 | | | 8 | 4 | | | 2 | 2 | | | | | | | 22 | 0 | 22 | 6.13% |
| WHITE BASS | | | 1 | | 1 | 2 | | | 1 | 1 | 1 | 1 | 1 | | 1 | 1 | 6 | 5 | 11 | 3.06% |
| ROCK BASS | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| PUMPKINSEED | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| SMALL MOUTH BASS | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| YELLOW PERCH | | | | | | | | | 1 | 1 | | | | | | | 2 | 0 | 2 | 0.56% |
| WALLEYE | | | | | 1 | 1 | | | 2 | | | | | | | | 4 | 0 | 4 | 1.11% |
| LOGPERCH | | | | | | | | | | | | | | | | | 0 | 0 | 0 | 0.00% |
| FRESH WATER DRUM | | | | | 2 | | | | | | | | | | | | 2 | 0 | 2 | 0.56% |
| TOTAL | 24 | 29 | 11 | 12 | 49 | 27 | 16 | 17 | 44 | 39 | 18 | 10 | 22 | 14 | 19 | 8 | 248 | 111 | 359 | 100.00% |

APPENDIX IV

COMMON AND SCIENTIFIC NAMES OF FISH SPECIES COLLECTED DURING THE 1987 PICKERING NGS B POSTOPERATIONAL STUDY

| COMMON NAME | SCIENTIFIC NAME |
|---|---|
| Alewife | Alosa pseudoharengus |
| White sucker | Catostomus commersoni |
| Brown bullhead | Ictalurus nebulosus |
| Lake trout | Salvelinus namaycush |
| Rainbow smelt | Osmerus mordax |
| White perch | Morone americana |
| Round whitefish | Prosopium cylindraceum |
| Brown trout | Salmo trutta |
| White bass | Morone chrysops |
| Spottail shiner | Notropis hudsonius |
| Gizzard shad | Dorosoma cepedianum |
| Pink salmon | Oncorhynchus gorbuscha |
| Coho salmon | Oncorhynchus kisutch |
| Yellow perch | Perca flavescens |
| Golden shiner | Notemigonus crysoleucas |
| Longnose dace | Rhinichthys cataractae |
| Carp | Cyprinus carpio |
| Smallmouth bass | Micropterus dolomieui |
| Rainbow trout | Salmo gairdneri |
| Pumpkinseed | Lepomis gibbosus |
| Lake whitefish | Coregonus clupeaformis |
| Rock bass | Ambloplites rupestris |
| Logperch | Percina caprodes |
| American eel | Anguilla rostrata |
| Northern pike | Esox lucius |
| Walleye | Stizostedion vitreum |
| Slimy sculpin | Cottus cognatus |
| Lake chub | Coiesius plumbeus |
| Fathead minnow | Pimephales promelas |
| Black crappie | Pomoxis nigromaculatus |
| Emerald shiner | Notropis atherinoides |
| Chinook salmon | Onchorhynchus tshawytscha |
| Freshwater drum | Aplodinotus grunniens |
| Bluntnose minnow | Pimephales notatus |
| Bowfin | Amia calva |
| Redhorse sucker | Moxostoma sp |
| Longnose sucker | Catostomus catostomus |
| Mottled sculpin | Cottus biardi |
| Common shiner | Notropis cornutus |

APPENDIX V

1987 TEMPERATURES (C) AT PICKERING NGS B BEACH SEINE LOCATIONS

| | PICKERING NGS A DISCHARGE | PICKERING NGS B DISCHARGE | DUFFIN'S CREEK | SIMCOE POINT |
|---|---|---|---|---|
| MAY 27 | 17 | 15 | 13 | 13 |
| JULY 22 | 21 | 24 | 18.5 | 18 |
| AUGUST 19 | 22 | 23 | 20 | 20 |
| SEPTEMBER 21 | 20 | 17 | 17 | 17 |
| OCTOBER 19 | 14.5 | 11 | 12 | 12 |

APPENDIX VI

1987 TEMPERATURES (C) AT PICKERING NGS B TRAP NET LOCATIONS

| | PICKERING A DISCHARGE | | | | PICKERING B DISCHARGE | | | | DUFFINS CREEK | | | | SIMCOE POINT | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | EAST | | WEST | | EAST | | WEST | | EAST | | WEST | | EAST | | WEST | |
| | S | B | S | B | S | B | S | B | S | B | S | B | S | B | S | B |
| MAY 20 | 16.0 | 11.8 | 15.5 | 12.0 | 10.0 | 10.0 | 9.8 | 9.8 | 9.5 | 9.5 | 9.5 | 9.5 | 9.3 | 9.3 | 9.3 | 9.3 |
| MAY 21 | 17.0 | 12.5 | 16.0 | 12.7 | 10.2 | 10.2 | 9.8 | 9.8 | 9.8 | 9.8 | - | 9.8 | - | - | 9.7 | 9.7 |
| MAY 22 | 16.0 | 14.5 | 14.8 | 14.2 | 13.0 | 10.5 | 14.5 | 10.5 | 11.7 | 11.7 | 11.7 | 11.7 | 10.8 | 10.8 | 10.8 | 10.8 |
| JUNE 22 | 21.2 | 17.0 | 21.0 | 16.8 | 16.0 | 16.0 | 15.8 | 15.9 | 16.0 | 15.5 | 16.1 | 16.0 | 16.0 | 16.0 | 15.9 | 16.1 |
| JUNE 23 | 23.9 | 20.0 | 22.5 | 17.5 | 17.0 | 17.0 | 22.0 | 16.5 | 16.5 | 16.0 | 16.5 | 16.0 | 16.1 | 16.0 | 16.9 | 16.5 |
| JUNE 24 | 22.0 | 19.0 | 21.0 | 18.0 | 23.5 | 15.5 | 21.5 | 15.5 | 19.0 | 16.0 | 18.5 | 16.0 | 16.0 | 16.1 | 17.5 | 16.0 |
| JULY 22 | 18.3 | 18.3 | 18.3 | 18.3 | 18.0 | 18.0 | 19.5 | 17.5 | 21.5 | 16.0 | 21.5 | 16.0 | 17.5 | 16.5 | 17.5 | 16.5 |
| JULY 23 | 19.5 | 19.5 | 20.5 | 20.0 | 21.3 | 17.5 | 21.5 | 18.5 | 17.5 | 16.2 | 17.5 | 16.2 | 17.0 | 16.3 | 17.0 | 16.3 |
| JULY 24 | 19.0 | - | 22.0 | - | 19.5 | - | 22.0 | - | 16.5 | - | 16.5 | - | 16.0 | - | 16.0 | - |
| AUG 18 | 25.2 | 24.8 | 24.7 | 24.3 | 23.0 | 21.8 | 24.5 | 21.7 | 21.7 | 21.5 | 21.7 | 21.5 | 21.6 | 21.6 | 21.6 | 21.6 |
| AUG 19 | 24.0 | 24.0 | 24.0 | 24.0 | 24.7 | 20.8 | 24.2 | 20.8 | 21.4 | 20.7 | 21.4 | 20.7 | 21.3 | 21.1 | 21.3 | 21.1 |
| AUG 20 | 17.2 | 13.8 | 16.5 | 15.1 | 11.2 | 9.7 | 17.7 | 10.6 | 12.8 | 10.3 | 12.8 | 10.6 | 12.8 | 11.9 | 12.8 | 11.9 |
| SEPT 21 | 20.0 | 18.6 | 19.8 | 18.4 | 17.3 | 17.0 | 17.0 | 17.1 | 16.5 | 16.5 | - | - | 6.1 | 15.6 | - | - |
| SEPT 22 | 23.6 | 22.6 | 22.8 | 23.0 | 48hr set | | 48hr set | | 48hr set | | 48hr set | | 48hr set | | 48hr set | |
| SEPT 23 | 20.5 | 20.5 | 22.7 | 21.7 | 19.5 | 19.8 | 20.7 | 20.7 | 17.3 | 17.1 | - | - | 17.3 | 17.3 | - | - |
| OCT 13 | 11.0 | 10.1 | 10.7 | 9.9 | 6.6 | 6.8 | 7.3 | 7.3 | 7.1 | 7.7 | 7.1 | 7.7 | 6.4 | 6.5 | 6.4 | 6.5 |
| OCT 14 | 13.6 | 12.4 | 12.9 | 12.4 | 9.3 | 7.7 | 11.3 | 10.5 | 7.1 | 7.3 | 6.9 | 7.2 | 6.8 | 6.8 | 6.8 | 6.8 |
| OCT 15 | 13.8 | 11.6 | 11.9 | 11.3 | 6.5 | 6.5 | 6.6 | 6.6 | 7.0 | 7.8 | 7.1 | 7.1 | 7.2 | 7.2 | 7.2 | 7.2 |

APPENDIX VII

1987 SURFACE AND BOTTOM TEMPERATURES (C) AT GILL NET LOCATIONS

| | | PK A DISCHARGE | | | | PK B DISCHARGE | | | | DUFFINS CREEK | | | | SIMCOE POINT | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 3M | | 12M | | 3M | | 12M | | 3M | | 12M | | 3M | | 12M | |
| DATE | GILL NETS | I | O | I | O | I | O | I | O | I | O | I | O | I | O | I | O |
| MAY 12 | SURFACE | 13.6 | 10.7 | 7.0 | 5.3 | 10.3 | 11.0 | 7.0 | 7.0 | 8.0 | 7.2 | 6.3 | 6.3 | 7.3 | 7.3 | 7.0 | 7.0 |
| | BOTTOM | 6.3 | 5.3 | 5.5 | 5.0 | 7.4 | 7.1 | 5.5 | 4.8 | 6.5 | 6.3 | 5.5 | 5.5 | 7.3 | 7.0 | 5.8 | 5.3 |
| MAY 13 | SURFACE | 14.3 | 14.0 | 8.3 | 8.3 | 7.0 | 7.3 | 7.0 | 7.0 | 7.3 | 7.2 | 7.0 | 6.8 | 7.0 | 6.8 | 6.7 | 6.5 |
| | BOTTOM | 6.3 | 6.7 | 6.0 | 6.0 | 7.0 | 7.3 | 6.5 | 6.0 | 7.3 | 7.2 | 6.0 | 6.0 | 7.0 | 6.8 | 6.2 | 5.8 |
| MAY 14 | SURFACE | 14.0 | 13.5 | 11.3 | 11.2 | 10.0 | 12.5 | 6.9 | 6.7 | 8.3 | 8.3 | 7.5 | 7.2 | 8.0 | 7.8 | 6.8 | 6.8 |
| | BOTTOM | 8.5 | 8.5 | 7.3 | 7.5 | 8.5 | 7.8 | 6.9 | 6.5 | 8.3 | 7.8 | 6.8 | 6.9 | 8.0 | 7.8 | 6.8 | 6.5 |
| JUNE 15 | SURFACE | 15.5 | 12.9 | 13.0 | 12.8 | 12.0 | 12.0 | 13.8 | 13.8 | 14.5 | 13.0 | 12.5 | 12.0 | 12.5 | 12.8 | 12.0 | 12.3 |
| | BOTTOM | 15.0 | 6.8 | 6.0 | 6.0 | 9.5 | 8.8 | 7.0 | 7.0 | 9.7 | 9.5 | 6.5 | 6.5 | 9.3 | 9.0 | 7.3 | 6.5 |
| JUNE 16 | SURFACE | 17.5 | 17.0 | 11.5 | 11.3 | 18.5 | 18.5 | 11.5 | 11.0 | 11.2 | 11.0 | 12.8 | 10.8 | 11.5 | 11.3 | 11.5 | 11.3 |
| | BOTTOM | 7.5 | 7.0 | 6.5 | 6.2 | 9.0 | 9.0 | 7.3 | 6.5 | 10.5 | 10.5 | 7.0 | 6.5 | 11.5 | 11.3 | 7.0 | 6.5 |
| JUNE 17 | SURFACE | 14.6 | 14.8 | 10.8 | 12.0 | 11.5 | 12.5 | 12.0 | 12.0 | 11.0 | 10.0 | 10.0 | 9.0 | 10.4 | 10.2 | 9.4 | 9.0 |
| | BOTTOM | 8.2 | 6.8 | 6.5 | 6.5 | 8.5 | 7.3 | 9.0 | 7.0 | 8.7 | 8.0 | 6.9 | 6.0 | 9.9 | 9.4 | 7.0 | 6.7 |
| JULY 13 | SURFACE | 22.0 | 22.5 | 19.5 | 21.5 | 21.5 | 22.3 | 19.0 | 19.3 | 21.2 | 18.2 | 19.0 | 20.0 | 18.8 | 20.0 | 19.5 | 20.3 |
| | BOTTOM | 14.5 | 14.0 | 13.0 | 13.0 | 16.0 | 15.0 | 13.0 | 12.5 | 16.0 | 15.2 | 13.0 | 13.0 | 16.6 | 15.8 | 14.0 | 13.0 |
| JULY 14 | SURFACE | 20.5 | 19.5 | 14.2 | 14.2 | 19.2 | 18.8 | 18.0 | 18.2 | 16.2 | 15.8 | 15.8 | 16.0 | 15.8 | 16.0 | 16.0 | 16.0 |
| | BOTTOM | 14.0 | 13.5 | 12.5 | 12.5 | 15.2 | 15.0 | 12.0 | 11.8 | 14.2 | 13.8 | 13.2 | 13.2 | 15.5 | 15.0 | 13.2 | 12.5 |
| JULY 15 | SURFACE | 15.5 | 16.2 | 13.8 | 14.2 | 18.0 | 20.5 | 16.2 | 15.5 | 12.5 | 13.0 | 13.2 | 13.2 | 11.6 | 11.0 | 12.5 | 12.8 |
| | BOTTOM | 12.2 | 11.8 | 10.2 | 10.2 | 12.5 | 12.8 | 11.2 | 10.6 | 11.4 | 10.8 | 10.3 | 10.0 | 11.2 | 11.0 | 10.4 | 9.8 |
| AUG 10 | SURFACE | 22.0 | 26.1 | 23.5 | 23.5 | 25.0 | 24.9 | 24.1 | 23.9 | 23.0 | 23.0 | 21.0 | 21.0 | 21.0 | 21.0 | 21.0 | 21.0 |
| | BOTTOM | 21.0 | 26.1 | 21.0 | 20.9 | 21.2 | 21.0 | 21.0 | 21.0 | 21.0 | 20.9 | 20.0 | 20.1 | 20.5 | 20.5 | 20.5 | 20.1 |
| AUG 11 | SURFACE | 29.0 | 29.0 | 25.0 | 24.5 | 29.0 | 31.0 | 29.0 | 28.0 | 22.0 | 22.0 | 21.6 | 21.5 | 22.0 | 21.6 | 21.5 | 21.5 |
| | BOTTOM | 24.0 | 22.0 | 21.0 | 21.0 | 21.5 | 21.0 | 21.0 | 21.0 | 21.5 | 21.5 | 21.0 | 21.0 | 21.5 | 21.5 | 20.5 | 20.5 |
| AUGUST 12 | SURFACE | 25.0 | 24.3 | 22.3 | 22.2 | 21.6 | 21.5 | 21.6 | 21.5 | 21.3 | 21.1 | 21.2 | 21.3 | 21.5 | 21.3 | 21.1 | 21.1 |
| | BOTTOM | 21.3 | 21.2 | 20.9 | 20.9 | 21.7 | 21.5 | 21.5 | 21.0 | 21.4 | 21.1 | 20.8 | 20.8 | 21.3 | 21.3 | 20.9 | 20.9 |
| SEPT 14 | SURFACE | 23.1 | 22.2 | 18.9 | 19.1 | 24.8 | 27.9 | 23.3 | 23.1 | 19.0 | 18.9 | 19.0 | 19.1 | 18.8 | 19.0 | 18.9 | 18.9 |
| | BOTTOM | 19.4 | 19.1 | 18.8 | 18.4 | 19.1 | 19.2 | 18.7 | 18.7 | 18.8 | 18.8 | 18.8 | 19.7 | 18.8 | 18.9 | 18.9 | 18.8 |
| SEPT 15 | SURFACE | 22.0 | 21.9 | 20.5 | 20.0 | 26.9 | 25.0 | 23.8 | 22.0 | 18.5 | 18.6 | 19.0 | 18.8 | 18.3 | 18.4 | 18.7 | 18.8 |
| | BOTTOM | 19.2 | 19.0 | 18.4 | 18.4 | 18.6 | 18.5 | 18.4 | 18.4 | 18.5 | 18.5 | 18.3 | 18.3 | 18.2 | 18.4 | 18.4 | 18.8 |
| SEPT 16 | SURFACE | X | X | 19.0 | 19.3 | 18.9 | 22.2 | 22.6 | 22.3 | 19.6 | 19.4 | 20.1 | 20.3 | 19.7 | 19.7 | 20.9 | 20.8 |
| | BOTTOM | X | X | 15.7 | 15.8 | 18.0 | 17.8 | 16.1 | 15.9 | 18.5 | 18.5 | 14.8 | 15.2 | 17.1 | 16.8 | 20.8 | 13.7 |
| OCT 05 | SURFACE | | | 12.9 | 10.2 | | | 11.3 | 10.8 | | | | | | | | |
| | BOTTOM | | | 5.1 | 5.1 | | | 5.1 | 5.2 | | | | | | | | |
| OCT 06 | SURFACE | 16.3 | 14.1 | 13.6 | 13.5 | 11.5 | 12.1 | 11.0 | 10.6 | 7.6 | 7.4 | 7.6 | 6.9 | 7.3 | 7.7 | 7.2 | 7.3 |
| | BOTTOM | 7.2 | 6.4 | 5.7 | 5.6 | 6.6 | 6.5 | 5.8 | 5.7 | 7.3 | 7.0 | 6.2 | 6.0 | 7.3 | 6.5 | 5.9 | 5.7 |
| OCT 07 | SURFACE | 48 hr set | | 7.8 | 7.7 | 10.1 | 12.8 | 7.3 | 7.3 | 6.7 | 6.6 | 7.3 | 7.2 | 7.3 | 7.2 | 6.8 | 6.7 |
| | BOTTOM | | | 6.0 | 6.1 | 7.3 | 6.6 | 5.9 | 5.9 | 6.7 | 6.3 | 5.9 | 5.9 | 6.7 | 7.1 | 5.9 | 6.1 |
| OCT 08 | SURFACE | 16.0 | 9.1 | | | 15.2 | 14.6 | | | 7.2 | 7.2 | 7.5 | 7.6 | 8.2 | 7.8 | 6.9 | 7.0 |
| | BOTTOM | 8.8 | 8.7 | | | 8.7 | 8.9 | | | 7.2 | 7.2 | 6.8 | 6.6 | 8.1 | 7.8 | 6.5 | 6.5 |
| NOV 10 | SURFACE | 14.1 | 9.4 | 7.4 | 6.4 | 13.6 | 5.1 | 5.0 | 5.0 | 4.7 | 5.2 | 4.7 | 5.2 | 5.4 | 5.4 | 5.1 | 5.2 |
| | BOTTOM | 5.1 | 5.0 | 4.9 | 4.9 | 11.5 | 5.0 | 5.1 | 5.1 | 4.7 | 5.2 | 4.7 | 4.5 | 5.4 | 5.4 | 5.1 | 5.1 |
| NOV 11 | SURFACE | 11.8 | 12.1 | 7.1 | 6.0 | 13.8 | 4.6 | 4.7 | 4.4 | 4.1 | 3.4 | 4.4 | 4.5 | 4.7 | 4.7 | 5.1 | 5.1 |
| | BOTTOM | 6.2 | 6.1 | 6.0 | 6.0 | 5.4 | 4.8 | 4.6 | 4.5 | 4.0 | 3.6 | 4.5 | 4.0 | 4.7 | 4.8 | 5.2 | 5.2 |

APPENDIX VIII

PICKERING NGS B, 1987

MAXIMUM, MINIMUM AND AVERAGE TEMPERATURES RECORDED BY CONTINUOUS MONITORS AT THE 3M DEPTH CONTOUR ALONG FOUR TRANSECTS FISHED (GEOTECHNICAL AND HYDRAULIC ENGINEERING DEPARTMENT)

| | PICKERING NGS A DISCHARGE | | | PICKERING NGS B DISCHARGE | | | DUFFIN CREEK | | | SIMCOE POINT | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MAX | MIN | AVG | MAX | MIN | AVG | MAX | MIN | AVG | MAX | MIN | AVG |
| GILL NETS | | | | | | | | | | | | |
| MAY 12 | 8.2 | 4.9 | 6.2 | 7.7 | 6.4 | 7 | 6.6 | 3.9 | 4.7 | 9.4 | 6.6 | 7.7 |
| MAY 13 | 8.6 | 5.2 | 6.7 | 8.4 | 6.2 | 7.4 | 6.3 | 4 | 5.4 | 7.8 | 6.6 | 7.3 |
| MAY 14 | 11.7 | 7.4 | 8.5 | 12.1 | 7.4 | 8.7 | 7.5 | 5.9 | 6.8 | 9.4 | 7.5 | 8.4 |
| JUNE 15 | 14 | 6.2 | 9.1 | 15 | 7.2 | 8.5 | 12 | 6.2 | 8.1 | 13.8 | 7 | 9 |
| JUNE 16 | 12.6 | 5.5 | 7.8 | 19.6 | 6.7 | 9.1 | 10.9 | 5 | 6.9 | 12 | 7 | 9.6 |
| JUNE 17 | 8.5 | 5.3 | 6.9 | 12.2 | 6.2 | 7.6 | 10.2 | 5 | 6.9 | 9.7 | 6.6 | 8 |
| JULY 13 | 14.5 | 13.6 | 14.2 | 24.6 | 14.7 | 15.7 | 18.2 | 15.3 | 16.3 | 17.5 | 15.1 | 16.2 |
| JULY 14 | 14.3 | 10.4 | 12.8 | 15 | 10.4 | 13.1 | 15.8 | 10.9 | 13.3 | 16.2 | 12 | 14.5 |
| JULY 15 | 15.4 | 9.5 | 11.9 | 21.3 | 10.2 | 11.6 | 13.6 | 9.9 | 11.8 | 14.3 | 10.2 | 12.2 |
| AUG 10 | 24.5 | 21.2 | 21.3 | 21.5 | 20.2 | 21 | 21.2 | 19.2 | 20.2 | 20.8 | 20.1 | 21 |
| AUG 11 | 24.7 | 21.2 | 22 | 21.7 | 20.9 | 21.3 | 21.9 | 20.6 | 21.1 | 22.1 | 20.8 | 21.4 |
| AUG 12 | 23.7 | 21.2 | 22.1 | 22.2 | 21.5 | 21.9 | 21.7 | 20.6 | 21.3 | 22.1 | 21 | 21.4 |
| SEPT 14 | 19.3 | 18.6 | 18.9 | 19.3 | 18.5 | 19.1 | 19.6 | 18.7 | 19.3 | 19.4 | 18.5 | 19 |
| SEPT 15 | 22.5 | 18 | 18.9 | 29.3 | 18.3 | 20.7 | 21.3 | 18.7 | 19.6 | 20.5 | 18.5 | 19.3 |
| SEPT 16 | 18.6 | 15.6 | 17 | 23.3 | 18.1 | 18.6 | 20.2 | 17.2 | 18.4 | 20.9 | 16.8 | 18.9 |
| OCT 6 | 10.7 | 4.9 | 6.6 | 17.3 | 5.8 | 8.2 | 8.3 | 6.6 | 7.2 | 6.9 | 6 | 6.5 |
| OCT 7 | 12.4 | 6.4 | 8 | 17.1 | 6.5 | 10.3 | 12 | 6.1 | 7.7 | 11.6 | 5.9 | 7 |
| OCT 8 | 8.1 | 6.9 | 7.3 | 8 | 6.5 | 7.3 | 6.9 | 5.9 | 6.2 | 10.7 | 5.5 | 6.6 |
| NOV 9 | 6.9 | 5.2 | 6 | 11.6 | 6.7 | 8.1 | 7.6 | 6 | 6.9 | 7.7 | 5 | 6.1 |
| NOV 10 | 5.9 | 4.7 | 5.2 | 6.6 | 4.6 | 5 | 6.3 | 4.2 | 5.3 | 5.5 | 4.7 | 5 |
| NOV 11 | 6.6 | 5.4 | 6 | 4.9 | 3.9 | 4.4 | 5.3 | 4.3 | 4.9 | 4.7 | 3.9 | 4.2 |
| TRAP NETS | | | | | | | | | | | | |
| MAY 20 | 10.3 | 9.6 | 10 | 10.2 | 9.5 | 9.9 | 8.2 | 7.8 | 7.8 | 9.4 | 9 | 9.2 |
| MAY 21 | 10.3 | 9.1 | 9.5 | 10.3 | 9.5 | 9.8 | 9 | 7.8 | 8.2 | 10.2 | 9.2 | 9.7 |
| MAY 22 | 10.3 | 8.9 | 9.2 | 12.5 | 9.5 | 10.4 | 9.5 | 8.1 | 8.8 | 11.3 | 9.7 | 10.5 |
| JUNE 21 | 16.8 | 10.1 | 13.5 | 16.4 | 14.4 | 15.5 | 16.4 | 12.2 | 15 | 16.1 | 12.7 | 15 |
| JUNE 22 | 16.4 | 10.5 | 14.9 | 16.1 | 15 | 15.6 | 16.5 | 15.3 | 16 | 16 | 13.6 | 15.5 |
| JUNE 23 | 17.2 | 15.5 | 15.9 | 15.9 | 15.1 | 15.5 | 17.6 | 15.3 | 16.1 | 16.5 | 15.4 | 15.9 |
| JULY 22 | 16.2 | 10.7 | 12.5 | 15.9 | 13.7 | 14.9 | 17.8 | 13.8 | 15.2 | 19.3 | 14.3 | 15.7 |
| JULY 23 | 20.4 | 11.1 | 14.9 | 16.9 | 14.3 | 15.7 | 19.5 | 13.6 | 16.5 | 20.8 | 13.8 | 16.6 |
| JULY 24 | 18.6 | 10.6 | 13.2 | 27.5 | 11.4 | 14.7 | 16.7 | 13.1 | 14 | 17.6 | 12.5 | 14.2 |
| AUG 18 | 21.9 | 20.6 | 21.2 | 29.9 | 21.1 | 22 | 22.6 | 20.4 | 21.1 | 23.8 | 21 | 21.7 |
| AUG 19 | 22.1 | 9.3 | 18.6 | 32.3 | 13.2 | 19.8 | 21.5 | 10.7 | 18 | 24 | 18.8 | 21 |
| AUG 20 | 19.1 | 6.1 | 11.7 | 25.5 | 7.2 | 13.2 | 16.7 | 7.4 | 10.6 | 19.9 | 8 | 10.9 |
| SEPT 21 | 20.1 | 17.8 | 18.4 | 19.4 | 17.2 | 17.7 | 18.3 | 16.5 | 17.5 | 18.3 | 17.2 | 17.6 |
| SEPT 22 | 18.9 | 17.8 | 18.2 | 19.2 | 17.2 | 17.7 | 18.1 | 17.4 | 17.8 | 17.9 | 17.4 | 17.6 |
| SEPT 23 | 18.9 | 17.6 | 18.1 | 27.8 | 17.7 | 21.5 | 19.6 | 17.6 | 18.4 | 18.9 | 17.2 | 17.9 |
| OCT 13 | 8.3 | 6.2 | 6.8 | 6.5 | 6 | 6.2 | 7.6 | 6.4 | 6.7 | 6.2 | 5.2 | 5.8 |
| OCT 14 | 13.4 | 6 | 7.1 | 12.4 | 6.3 | 7.2 | 7.7 | 6 | 6.9 | 7.2 | 5.9 | 6.4 |
| OCT 15 | 8.3 | 6.4 | 7 | 7.1 | 6 | 6.5 | 8.1 | 6.4 | 7.1 | 8.2 | 6 | 6.7 |

APPENDIX IX

ROUND WHITEFISH STUDY - PICKERING NGS B, NOVEMBER 26-27, 1987.

1 - NOVEMBER 26
2 - NOVEMBER 27

| | | PICKERING A DISCHARGE | | PICKERING B DISCHARGE | | SIMCOE POINT | | RICHARDSON POINT | | WHITBY WEST | | THICKSON POINT | | TOTAL 3M | TOTAL 7M | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | DEPTH | 3M | 7M | 3M | 7M | 3M | 7M | 3M | 7M | 3M | 7M | 3M | 7M | | | |
| | DATE | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | | | |
| WHITE SUCKER | | 10 | 3 | 9 | 4 | 12 | 5 | | 2 | 4 | 10 | 7 | 3 | 42 | 27 | 69 |
| BROWN TROUT | | 12 | 10 | 16 | 12 | 11 | 2 | 3 | 6 | 7 | 4 | 3 | 6 | 52 | 40 | 92 |
| LAKE TROUT | | 4 | 3 | | 24 | 3 | 3 | | | | 1 | | 2 | 7 | 33 | 40 |
| ROUND WHITEFISH | | 1 | 7 | 6 | 35 | 1 | 4 | 1 | 7 | 5 | 3 | 23 | 27 | 37 | 83 | 120 |
| YELLOW PERCH | | 1 | 1 | | | 1 | | | 1 | 1 | 2 | | | 3 | 4 | 7 |
| WHITE PERCH | | 18 | 2 | 10 | 1 | 3 | | 2 | 1 | | | | | 33 | 4 | 37 |
| RAINBOW TROUT | | | | | | 1 | | 1 | | | | 1 | | 3 | 0 | 3 |
| GIZZARD SHAD | | | | 1 | | 2 | | 1 | | 1 | | | | 5 | 0 | 5 |
| WHITE BASS | | 1 | 1 | 1 | | | | | | | | | 1 | 2 | 2 | 4 |
| LAKE WHITEFISH | | | | | 1 | | | | | | | | | 0 | 1 | 1 |
| ALEWIFE | | | | | 1 | | | | | | | | | 0 | 1 | 1 |
| LAKE CHUB | | | | | 1 | | | | | | | | | 0 | 1 | 1 |
| COHO SALMON | | 1 | | | | | | | | | | | | 1 | 0 | 1 |
| CHINOOK SALMON | | | | | | | | | 1 | | | | | 0 | 1 | 1 |
| LONGNOSE SUCKER | | | | | | | | | | | | | 1 | 0 | 1 | 1 |
| CARP | | | | | | | | | | | | 1 | | 1 | 0 | 1 |
| TOTAL | | 48 | 27 | 43 | 79 | 34 | 14 | 8 | 18 | 18 | 20 | 35 | 39 | 186 | 198 | 384 |

APPENDIX IX

ROUND WHITEFISH STUDY - PICKERING NGS B, DECEMBER 2-3, 1987

1 - DECEMBER 2
2 - DECEMBER 3

| | PICKERING A DISCHARGE | | PICKERING B DISCHARGE | | SIMCOE POINT | | RICHARDSON POINT | | WHITBY WEST | | THICKSON POINT | | TOTAL 3M | TOTAL 7M | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DEPTH | 3M | 7M | 3M | 7M | 3M | 7M | 3M | 7M | 3M | 7M | 3M | 7M | | | |
| DATE | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | | | |
| WHITE SUCKER | 8 | 2 | 5 | 1 | 6 | 1 | 4 | | 3 | | | | 26 | 4 | 30 |
| BROWN TROUT | 8 | 12 | 8 | | 4 | 2 | 1 | | 6 | 4 | 4 | 3 | 31 | 21 | 52 |
| LAKE TROUT | 1 | 2 | 1 | 4 | 1 | | | 1 | 3 | 1 | | | 6 | 8 | 14 |
| ROUND WHITEFISH | 1 | 3 | 1 | 16 | 1 | 6 | 7 | 4 | 7 | 6 | 11 | 10 | 28 | 45 | 73 |
| YELLOW PERCH | 10 | | | | | | | | | 1 | 1 | 7 | 11 | 8 | 19 |
| WHITE PERCH | 7 | 9 | 6 | 4 | 2 | | 1 | 2 | 7 | 1 | 5 | | 28 | 16 | 44 |
| RAINBOW TROUT | | | | | 1 | | | | | | 2 | 1 | 3 | 1 | 4 |
| GIZZARD SHAD | | | | | | | | | | | | | 0 | 0 | 0 |
| WHITE BASS | 2 | 2 | 3 | | 2 | 1 | | | 1 | | 1 | | 9 | 3 | 12 |
| LAKE WHITEFISH | | | | | | | | | | | | | 0 | 0 | 0 |
| ALEWIFE | | | | | 1 | 1 | | 1 | | | | | 1 | 2 | 3 |
| LAKE CHUB | | | | | | | | | | | | | 0 | 0 | 0 |
| COHO SALMON | 1 | | | | | | | | | | | | 1 | 0 | 1 |
| CHINOOK SALMON | | | | | | | | | | | | | 0 | 0 | 0 |
| LONGNOSE SUCKER | | | | | | | | | | | | | 0 | 0 | 0 |
| CARP | | | 1 | | | | | | | | | | 1 | 0 | 1 |
| TOTAL | 38 | 30 | 25 | 25 | 18 | 11 | 13 | 8 | 27 | 13 | 24 | 21 | 145 0 | 108 0 | 253 |

APPENDIX IX

ROUND WHITEFISH STUDY - PICKERING NGS B DECEMBER 8-9, 1987

1 - DECEMBER 8
2 - DECEMBER 9

| | DEPTH | PICKERING A DISCHARGE | | PICKERING B DISCHARGE | | SIMCOE POINT | | RICHARDSON POINT | | WHITBY WEST | | THICKSON POINT | | TOTAL | TOTAL | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | DATE | 3M | 7M | 3M | 7M | 3M | 7M | 3M | 7M | 3M | 7M | 3M | 7M | 3M | 7M | |
| | | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | | | |
| WHITE SUCKER | | 5 | 4 | 1 | 2 | 1 | | 4 | 2 | 5 | 1 | 2 | | 18 | 9 | 27 |
| BROWN TROUT | | 2 | 1 | 5 | 2 | 1 | 2 | 2 | 6 | 1 | 9 | 3 | 6 | 14 | 26 | 40 |
| LAKE TROUT | | | | 1 | 1 | | 2 | | | | 1 | | 1 | 1 | 5 | 6 |
| ROUND WHITEFISH | | | 1 | 15 | 23 | 1 | 1 | 2 | 1 | 1 | | 13 | 12 | 32 | 38 | 70 |
| YELLOW PERCH | | 1 | | | | | | | | 2 | | | | 3 | 0 | 3 |
| WHITE PERCH | | 1 | 2 | 8 | 2 | 1 | 2 | 2 | 2 | | 2 | | | 12 | 10 | 22 |
| RAINBOW TROUT | | 1 | | 1 | | | | | | | | | | 2 | 0 | 2 |
| GIZZARD SHAD | | 1 | | | | | | | | | | | 1 | 1 | 1 | 2 |
| WHITE BASS | | 2 | 1 | | | | 1 | | | | | | 1 | 2 | 3 | 5 |
| LAKE WHITEFISH | | | | | | | | | | | | | | 0 | 0 | 0 |
| ALEWIFE | | | | | | | | | | | | | | 0 | 0 | 0 |
| LAKE CHUB | | | | | | | | | | | | | | 0 | 0 | 0 |
| COHO SALMON | | | | | | | | | | | | | | 0 | 0 | 0 |
| CHINOOK SALMON | | | | | | | | | | | | | | 0 | 0 | 0 |
| LONGNOSE SUCKER | | | | | | | | | | | | | | 0 | 0 | 0 |
| CARP | | | | 1 | | | | | | | | | | 0 | 0 | 0 |
| TOTAL | | 13 | 9 | 32 | 30 | 4 | 8 | 10 | 11 | 9 | 13 | 18 | 21 | 1 | 0 | 1 |
| | | | | | | | | | | | | | | 86 | 92 | 178 |

APPENDIX X

1987 TEMPERATURES AT ROUND WHITEFISH SPAWNING STUDY GILL NET LOCATIONS

| | | PK A DIS | | | | PK B DIS | | | | SIMCOE POINT | | | | RICHARDSON POINT | | | | WHITBY WEST | | | | THICKSON POINT | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 3M | | 7M | | 3M | | 7M | | 3M | | 7M | | 3M | | 7M | | 3M | | 7M | | 3M | | 7M | |
| | | I | O | I | O | I | O | I | O | I | O | I | O | I | O | I | O | I | O | I | O | I | O | I | O |
| NOV 23 | SURFACE | 12.4 | 5.7 | 4.9 | 4.7 | 18.5 | 12.6 | 4.9 | 5 | 8 | 7.2 | 7.3 | 7.1 | | | | | | | | | | | | |
| | BOTTOM | 6.7 | 6.3 | 4 | 4.1 | 16.7 | 8.1 | 4.9 | 5 | 8.1 | 7.4 | 7.3 | 7.1 | | | | | | | | | | | | |
| NOV 26 | SURFACE | 13.4 | 13.4 | 8.8 | 8.8 | 4.4 | 4.7 | 4.8 | 4.8 | 4.2 | 4.2 | 4.1 | 4.2 | 4 | 4.1 | 3.8 | 3.8 | 3.8 | 3.9 | 3.9 | 4.1 | 4 | 4.1 | 4.2 | 4.1 |
| | BOTTOM | 6.4 | 5.9 | 5.4 | 5.4 | 4.4 | 4.6 | 4.8 | 4.8 | 4.3 | 4.2 | 4.1 | 4.2 | 3.8 | 4 | 3.2 | 3.7 | 3.7 | 3.8 | 3.8 | 4 | 4 | 4.1 | 4.1 | 4.1 |
| NOV 27 | SURFACE | | | | | | | | | | | | | 3.3 | 3.3 | 3.4 | 3.4 | 3.5 | 3.5 | | 3.5 | 3.2 | 3.4 | 3.4 | 3.4 |
| | BOTTOM | | | | | | | | | | | | | 3.5 | 3.5 | 3.5 | 3.4 | 3.5 | 3.3 | | 3.4 | 3.2 | 3.2 | 3.4 | 3.4 |
| DEC 1 | SURFACE | 10.3 | 6.4 | 4.8 | 4.6 | 10.1 | 12.6 | 10.9 | 10.9 | 5.8 | 4.8 | 4.7 | 4.8 | | | | | | | | | | | | |
| | BOTTOM | 6.4 | 5.2 | 4.8 | 4.7 | 6.5 | 6.6 | 4.8 | 4.8 | 5 | 4.8 | 4.7 | 4.8 | | | | | | | | | | | | |
| DEC 2 | SURFACE | 9.8 | 4.3 | 3.2 | 3.7 | 9.2 | 13.9 | 3.7 | 3.7 | 4.7 | 4.8 | 4.5 | 4.5 | 4.4 | 4.4 | 4.4 | 4.4 | 4.2 | 4.2 | 4.2 | 4.2 | 3.5 | 4.2 | 4.2 | 4.4 |
| | BOTTOM | 4.4 | 4.3 | 3.7 | 3.7 | 5.6 | 5.6 | 3.8 | 3.8 | 4.7 | 4.6 | 4.4 | 4.4 | 4.4 | 4.5 | 4.6 | 4.5 | 4.3 | 4.3 | 4.3 | 4.3 | 3.6 | 4.3 | 4.3 | 4.4 |
| DEC 3 | SURFACE | | | | | | | | | | | | | 5.2 | 5.2 | 5 | 5.2 | 3.8 | 3.8 | 4.2 | 4.4 | 3.8 | 3.8 | 4 | 4.1 |
| | BOTTOM | | | | | | | | | | | | | 4.5 | 5 | 4.2 | 4.2 | 3.8 | 3.9 | 4.1 | 4.6 | 4 | 3.9 | 3.9 | 4.1 |
| DEC 7 | SURFACE | | | | | | | | | | | | | 3.4 | 3.3 | 3.3 | 3.3 | 3 | 3.1 | 3.2 | 3.2 | 3.2 | 3.2 | 3.2 | 3.2 |
| | BOTTOM | | | | | | | | | | | | | 3.3 | 3.3 | 3.3 | 3.3 | 3 | 3.2 | 3.2 | 3.3 | 3.1 | 3.2 | 3.2 | 3.2 |
| DEC 8 | SURFACE | 14.3 | 13.6 | 11 | 11 | 3.6 | 3.8 | 3.8 | 4.1 | 3.5 | 3.6 | 3.7 | 3.8 | 2.7 | 2.8 | 3 | 2.9 | 2.6 | 2.6 | 3 | 3.2 | 2.7 | 2.8 | 2.8 | 3 |
| | BOTTOM | 14.3 | 5.9 | 5.9 | 5.9 | 3.6 | 3.8 | 3.8 | 4.1 | 3.6 | 3.7 | 3.7 | 3.8 | 2.8 | 2.9 | 3.2 | 3.2 | 2.5 | 2.6 | 3 | 3.2 | 2.7 | 2.9 | 2.9 | 3 |
| DEC 9 | SURFACE | 12.5 | 10 | 7 | 6.9 | 3.9 | 3.9 | 3.9 | 3.9 | 4.3 | 4.3 | 4.3 | 4.3 | | | | | | | | | | | | |
| | BOTTOM | | | | | - | | | | - | | | | | | | | | | | | | | | |